LAKE COUNTY BOARD OF HEALTH ORDINANCE

ARTICLE V

REGULATION OF ONSITE WASTEWATER TREATMENT SYSTEMS AND LICENSING OF ONSITE WASTEWATER TREATMENT SYSTEM PROFESSIONALS

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APPENDICES

CHAPTER 1 - ADMINISTRATION
SECTION OWTS-101.0 GENERAL

OWTS-101.1 Title: This ordinance shall be known as the Onsite Wastewater Treatment System Ordinance of the County of LAKE, hereinafter referred to as "this Ordinance."

OWTS-101.2 Scope: The provisions of this Ordinance shall regulate onsite wastewater treatment systems (OWTSs), which are required and permitted where no public sewer is available to a building containing interior plumbing fixtures that upon use will produce domestic sewage.

OWTS-101.3 Intent: This Ordinance is enacted in order to assure the proper design and installation of systems for the treatment and disposal of wastewater, to establish and provide for the enforcement of minimum standards for the location, installation, alteration, operation, maintenance, management, monitoring and continued use of all onsite wastewater treatment systems so as to protect the health of the public and the natural resources within the County of LAKE from impairment, pollution, or destruction.

SECTION OWTS-102.0 APPLICABILITY

OWTS-102.1 General: The provisions of these regulations shall cover all matters affecting or relating to onsite wastewater treatment and disposal as set forth in this Ordinance.

OWTS-102.2 Matters Not Provided For: Any onsite wastewater treatment system's requirement essential for the sanitary conditions of an existing or proposed building or structure, or essential for the health or safety of the occupants thereof, and which is not specifically established in this Ordinance, the referenced standards or Lake County Onsite Wastewater Treatment System Program Administrative Procedures and Policies, shall be determined by the Health Officer.

OWTS-102.3 Continued Use: The continued of use of an onsite wastewater treatment system, or part thereof, contrary to the provisions of this Ordinance shall be deemed a violation, and subject to the penalties prescribed in Chapter 14.

OWTS-102.4 Referenced Standards: The standards referenced in this Ordinance and listed in Appendix A shall be considered part of the requirements of this Ordinance to the prescribed extent of each reference. Where differences occur between provisions of this Ordinance and referenced standards, the provisions of this Ordinance shall apply except as specified in Chapter 18.

SECTION OWTS-103.0 VALIDITY

OWTS-103.1 Partial: In the event any part or provision of this Ordinance is held to be illegal or void, such finding shall not have the effect of making void or illegal any of the other parts or provisions thereof, that are determined to be legal, and it shall be presumed that this Ordinance would have been approved without such illegal or invalid parts or provisions.

OWTS-103.2 Segregation: Any invalid part of this Ordinance shall be segregated from the remainder of the Ordinance by the court holding each part invalid, and the remainder shall remain effective.

SECTION OWTS-104.0 DUTIES & POWERS OF THE HEALTH OFFICER

OWTS-104.1 General: The Health Officer shall enforce all of the provisions of this Ordinance and shall act on any question relative to the mode or manner of the design or construction and the materials to be used in the installation of onsite wastewater treatment systems, except as otherwise specifically provided for by statutory requirements, and shall specifically act as follows:

OWTS-104.1.1 Applications and Permits: The Health Officer shall receive applications and issue permits for the installation of onsite wastewater treatment systems, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this Ordinance.

OWTS-104.1.2 Product Approvals: The Health Officer shall refuse to approve the use of an onsite wastewater system component, or system, approved by the Illinois Department of Public Health if the use and application fails to meet the minimum requirements of this ordinance.

OWTS-104.1.3 Notices and Orders: The Health Officer shall issue all necessary notices or orders to remove illegal or unsafe conditions, to require the necessary safeguards during construction, and to insure compliance with all Ordinance requirements. Any written order posted on premises involved shall not be removed except by order of the Health Officer. Removal without such order shall constitute a violation of this Ordinance to ensure the health, safety and general welfare of the public. The Health Officer may revoke, by writing, any permit or approval issued contrary to this Ordinance or based upon a false statement or misrepresentation in the application.

OWTS-104.1.4 Authority To Enter Premises: The Health Officer, after identification, shall have the authority to enter any property at any reasonable time to inspect any for health and sanitation purposes, and for compliance with the provisions of this Ordinance. The Health Officer may also make any necessary test, including dye tests or obtaining effluent samples for laboratory analysis, on any property to determine compliance with the provisions of this Ordinance. The Health Officer is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise.

OWTS-104.1.5 Licenses: The Health Officer shall issue licenses, after a determination of competence pursuant to the provisions of Chapter 11, to any person engaged in the evaluation of the soils or in the design, construction, or maintenance of onsite wastewater

treatment systems with the County of LAKE, and may suspend or revoke any license for cause.

OWTS-104.1.6 Credentials: The Health Officer and authorized representatives shall carry proper credentials of their respective office for the purpose of inspecting any and all systems in the performance of duties under this Ordinance.

OWTS-104.1.7 Official Records: The Health Officer shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records so long as the building or structure to which they relate remains in existence unless otherwise provided for.

OWTS-104.1.8 Technical Advisory Workgroup: Within one (1) year after the effective date of this ordinance, the Health Officer may assemble a Technical Advisory Workgroup for the purpose of reviewing and suggesting revisions to this ordinance where warranted. The workgroup shall meet at least 2 times per year approximately 6 months apart.

SECTION OWTS-105.0 EXISTING SYSTEMS

OWTS-105.1 Continued System Use: The legal use and occupancy of any building serviced by an onsite wastewater treatment system, that had been heretofore approved, shall be permitted to be continued without change, except as specifically addressed in this Ordinance.

OWTS-105.2 System Maintenance: The owner of an onsite wastewater treatment system shall be responsible for its safe and sanitary operation and maintenance. All system components that are required by this Ordinance shall be maintained in working order.

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CHAPTER 2 - DEFINITIONS

OWTS-201.0 GENERAL

OWTS-201.1 Scope: Unless otherwise expressly stated, or defined in materials adopted by reference in this Ordinance, the following words and terms shall have the meanings indicated in this Chapter. Where terms are defined in both materials adopted by reference in this Ordinance as well as in this Chapter, the definition in this Chapter shall apply in the enforcement of this Ordinance.

OWTS-201.2 Terms Not Defined: Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

OWTS-202.0 GENERAL DEFINITIONS

Alteration-Replacement Onsite Wastewater Treatment System: An onsite wastewater treatment system that is designed to comply with the requirements of this Ordinance when an alteration to a property or building occurs, or when a change in use of a building is made that affects the wastewater flow. An Alteration-Replacement Onsite wastewater treatment System may consist of the complete replacement of all components of the system, or the replacement of selected system components, and may include the soil treatment component.

Atypical wastewater flow: Wastewater flow that is not typical of domestic sewage due to conditions described in Section OWTS-507.0.

Base Flood Elevation: The elevation delineating the level of flooding resulting from the 100-year flood frequency storm event.

Bedroom: Any room in a dwelling that is suitable for regular use as private sleeping quarters for a person, including a room in a basement, that contains a closet and shares a common hallway with, or is adjoining a bathroom containing at least a toilet, lavatory and shower stall.

Building footprint: The outside perimeter of a building including attached garages, seasonal rooms, breezeways and covered porches.

Building plan: A plan prepared to depict the floor plan of a building, including both existing and proposed space.

Class I aerobic treatment unit: A mechanical wastewater treatment unit classified, listed and labeled as Class I by an ANSI accredited third-party testing and certification organization, and certified compliant with the International Organization for Standardization (ISO)/International Electrochemical Commission (IEC) Guide 65 to determine compliance with the requirements of NSF ANSI Standard 40 for wastewater treatment systems.

Coarse sand: Fill material having an effective diameter of 0.15 to 0.30 mm with a coefficient of uniformity <5.0, and having less than 20% material coarser than 2 mm and less than 5% silt and clay.

Conceptual site plan: A plan for the construction of an Alteration-Replacement Onsite Wastewater Treatment System submitted in accordance with the requirements of Section OWTS-504.4.

Construction Permit: A non-transferable permit issued to a licensed onsite wastewater treatment system installation contractor to construct/install an onsite wastewater treatment system in accordance with the approved site plan and the requirements of this Ordinance.

Deflection (of a concave soil treatment component): The maximum distance between the down slope edge of a soil treatment component to the length of a perpendicular line that intersects furthest points of the contour line along the down slope edge of the soil treatment component. The percent deflection is determined by dividing the amount of deflection by the effective soil treatment component length. The effective length of a soil treatment component is the distance between the furthest points along the contour line of the down slope edge of the soil treatment component.

Discharge rate: The volume of wastewater discharged from a low pressure distribution system expressed as gallons per minute, and applied as a rate either per perforation, per line, or per system.

Distal end pressure: A measure of system pressure in a low pressure distribution system made at the end of a lateral distribution pipe opposite the force main connection, and expressed as feet of pressure head.

Diverter valve: A valve with a single inflow that may be adjusted to direct outflow into any one of two or more directions.

Domestic Sewage: Wastewater derived principally from dwellings, businesses, office buildings, institutions, food establishments, or similar facilities.

Effluent filter: A removable, cleanable, or disposable device installed on the outlet piping of a septic tank for the purpose of retaining solids of a specific size and/or modulating effluent flow rate.

Failing Onsite Wastewater Treatment System: An onsite wastewater treatment that is not properly and/or adequately treating and dispersing wastewater, causing unsanitary conditions as described in Section OWTS-401.1, and as a result, creating an imminent health hazard or a public nuisance.

Flow control device: A device specially designed to equalize the outflow elevation of effluent from a distribution box, typically a rotating pipe cap provided with an off center outflow orifice that can adjust the flow line by rotation of the cap.

Health Officer: The Executive Director of the Lake County Health Department or an appropriate designated agent.

High strength wastewater: (1) Sewage having a 5-Day Biochemical Oxygen Demand (BOD_5) greater than 300 mg/L, Total Suspended Solids (TSS) greater than 200 mg/L, or fats, oils, and greases greater than 50mg/L entering a primary pretreatment component, or (2) effluent from a septic tank or other pretreatment component that has a BOD_5 greater than 170 mg/L, TSS greater than 60 mg/L, or fats, oils, and grease greater than 25 mg/L that is intended to be applied to an infiltrative surface.

Imminent Health Hazard: A hazard to public health when the evidence is sufficient to show that a condition or practice, posing or contributing to a significant threat of danger to health or safety, creates or may create a public health situation that should be corrected immediately to prevent injury or illness, and that should not be permitted to continue.

Increased water usage: A projected increase in the amount of water required to be treated by an onsite wastewater treatment system as a result of an alteration to a property or a change in the use of a property. Alterations to properties that result in increased water usage include, but based on the determination of the Health Officer, are not limited to:

1) The addition of a bedroom to a dwelling.
2) The addition of square footage to any building that is greater than 50% of the original building square footage. The square footage increase calculation shall include the area of all approved building addition projects on record. The square footage of the building prior to the first approved project shall be the initial building square footage.
3) An increase in the amount of water required to be treated by the onsite wastewater treatment system serving a non-residential building of greater than 150 gallons per day, as determined by the Health Officer in accordance with the requirements of Table C.1, water meter data, or other acceptable means.

Isolation distance: The vertical measurement from a wastewater application point to a limiting layer.

Lift station: A watertight containment intended solely to collect pretreated effluent and containing a submersible effluent pump, external pump switch(es), an audio-visual alarm and additional pump control devices.

Limiting layer: That plane in a soil profile that restricts the placement of a wastewater application point due to conditions including, but not limited to, seasonal high water table or permanent saturated conditions, restrictive permeability (loading rate of 0 gpd/ft^2), excessive permeability (gravelly coarse sand or coarser texture), or fractured bedrock.

Maintenance: One-time action taken by an appropriately licensed installation contractor or homeowner to restore proper onsite wastewater treatment system performance or function. The following actions shall be considered maintenance:

1. Replacement of baffles, pumps, electrical components, switches, motors or controls;
2. One-to-one replacement of header lines, building sewers, effluent conveyance piping, force mains, drip system supply and return lines, drop boxes or distribution boxes, in order to maintain or improve unrestricted flow of wastewater; and
3. Removal of pipe blockages using mechanical auguring equipment.

Management activities: Routine or periodic action, as required by this Ordinance, taken by an appropriately licensed service provider or a homeowner to assure continued proper onsite wastewater treatment system performance, extend onsite wastewater treatment system longevity, and/or assure an onsite wastewater treatment system meets performance standards. The following actions shall be considered management activities:

1. Servicing certified system pretreatment component(s);
2. Sampling or servicing surface discharging onsite wastewater treatment system(s);
3. Pumping holding tank(s);
4. Reporting, by means required by this Ordinance, system management activities to the Health Officer.
5. Services performed on drip distribution onsite wastewater treatment systems.

New Onsite Wastewater Treatment System: A newly constructed onsite wastewater treatment system designed to serve:

1. A new dwelling or non-residential building on a property on which a dwelling or non-residential building had not previously existed;
2. A new dwelling or non-residential building on a property on which a dwelling or non-residential building had previously existed, but which has been not been standing for at least one (1) year; or
3. A new dwelling or non-residential building that replaces an existing dwelling or non-residential building and the new dwelling or non-residential building has a different building footprint and/or location than the existing.

Onsite Wastewater Treatment System (OWTS): A wastewater treatment and disposal system that is installed on the site at which the wastewater is produced, and disperses treated wastewater into soil, discharges treated wastewater to a discharge point open to the environment when the projected daily flow is less than 1500 gallons, or contains wastewater in a tank or tanks for removal and disposal at a remote site. For the purposes of this Ordinance, an onsite wastewater treatment system may also be referred to as a system.

Onsite Wastewater Treatment System Component: A component of a wastewater treatment and disposal system that is installed on the site at which the wastewater is produced including, but not limited to, a septic tank, a lift station, a secondary pretreatment unit, or soil treatment area. For the purposes of this Ordinance, an onsite wastewater treatment system component may also be referred to as a system component.

Pre-treatment system component: One or more septic tanks in parallel or series, exterior grease interceptor(s), or secondary treatment units designed to treat wastewater prior to it being treated by another onsite wastewater treatment system component.

Redoximorphic features: Soil characteristics associated with seasonal saturation that result from the chemical reduction and oxidation of iron and manganese compounds in the soil, and are indicative of the extent of soil saturation.

Repair to an Onsite Wastewater Treatment System: Actions taken by a licensed installation contractor or homeowner to improve or correct the performance of an onsite wastewater treatment system, including, but not limited to, repairing or replacing an onsite wastewater treatment system component (not including the replacement of, or addition to, the soil treatment component), or to facilitate operation and maintenance of an existing onsite wastewater treatment system including, but not limited to, the following actions:

1. Replacing a pretreatment system component.
2. Replacing a lift station.
3. Adding aerobic remediation, filtration, or distribution components
4. Replacing pressure distribution piping or drip tubing,
5. Replacing the gravel bed in a Wisconsin mound system.
6. Extending the basal width along the entire length of the downslope toe of a system using gravel or coarse sand, as applicable when reserve area is designated on an existing approved site plan.
7. Installing a shallow toe drain at the downslope toe of a Wisconsin at-grade, mound, or modified mound system, or an Illinois raised filter bed system seeping to the ground surface provided the seeping water does not meet the definition of domestic sewage, and all system inflow and infiltration has been corrected. The toe drain shall discharge to a seepage trench and shall meet the setback distances in Appendix D.

Replacement Onsite Wastewater Treatment System: An onsite wastewater treatment system that is designed to comply with the requirements of this Ordinance to replace all system components, or selected system components, but in all cases includes the replacement of the soil treatment component, of an existing onsite wastewater treatment system.

Reserve soil treatment area: An area designated for the replacement or enlargement of a soil based onsite wastewater treatment system.

Septage: Liquid and solid material removed from domestic septic tanks or other approved pretreatment systems, and specifically excluding wastes from portable toilets, holding tanks, grease traps and sewage treatment plant sludge material.

Site plan: A prepared plan that depicts a proposed onsite wastewater treatment system design on a property in accordance with the requirements of Chapter 8 of this Ordinance, and that meets all other applicable requirements of this Ordinance.

Site development plan: A prepared plan that depicts the finished contouring of a site, including modifications to the site associated with proposed work on the onsite wastewater treatment system, to specifications acceptable to the controlling village or municipality or the County of Lake.

Soil based Onsite Wastewater Treatment System: A wastewater treatment and disposal system that is designed to discharge pretreated wastewater, for further treatment and dispersal, to an appropriate soil treatment component,

Soil Classifier/Soil Scientist: A Certified Professional Soil Classifier (CPSC), as determined by the Illinois Soil Classifiers Association (ISCA), or a Certified Professional Soil Classifier (CPSC) or Certified Professional Soil Scientist (CPSS) as determined by the Soil Science Society of America (SSSA).

Soil loading rate: The maximum rate, based upon a soil's texture, structure, and consistence and expressed as gallons per day per square foot (gpd/ft^2) of infiltration area, at which effluent may be applied to a soil treatment system.

Soil resource group: A group of soils specific to this ordinance that share common traits and similar subsoil materials.

Square footage of a building: The calculation, measuring the outside dimensions, of the floor area of an existing or proposed dwelling or non-residential building, or part of an existing or

proposed dwelling or non-residential building, that is a habitable portion of the dwelling or non-residential building, and as further described below. The Health Officer **shall not** include the following areas in the calculation of the square footage of an existing or proposed dwelling or non-residential building, or part of an existing or proposed dwelling or non-residential building:

1. Unheated or unfinished attics with exposed structural construction.
2. Unheated screened or covered porches and breezeways.
3. Unfinished basements,
4. Finished basements that do not contain a bedroom.

Subdivision: Any division or re-division of a parcel of land into two (2) or more parts by means of mapping, platting, conveyance, change or rearrangement of boundaries.

System Type: A category of onsite wastewater treatment system, as illustrated in Appendix E, and distinguished by system profile features that are designed to meet the required separation distance between the wastewater application point and the limiting layer.

Topographical survey: A representation of changes in elevation of a property prepared to scale by an Illinois licensed surveyor or engineer, that depicts each 1 foot change in elevation by a contour line, is referenced to a benchmark of known or assumed elevation, and which encompasses a sufficient area to include the proposed structure, the onsite wastewater treatment system area and any other topographical feature relevant to the wastewater system.

Wastewater: For the purposes of the enforcement of this Ordinance, and unless otherwise specified, the term "wastewater" shall refer to domestic sewage.

Wastewater Application Point: The point lowest in elevation at which wastewater applied to a soil treatment component of an onsite wastewater treatment system will first contact with soil or fill material.

Wetland: Land that is inundated or saturated by surface or shallow ground water at a sufficient frequency and duration to support, under ordinary conditions, a prevalence of vegetation adapted to such conditions (hydrophytic vegetation).

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CHAPTER 3 – GENERAL REQUIREMENTS

SECTION OWTS-301.0 GENERAL

OWTS-301.1 - Authority: The Health Officer, in order to protect and promote the health, safety, and general welfare of the people of Lake County, Illinois, and other affected communities, is authorized and directed to develop procedures, practices and policies; to interpret and enforce these rules and regulations establishing minimum standards for sewage discharges, the location, installation, alteration, operation, maintenance, and monitoring of all onsite wastewater treatment systems, so as to protect land, water, groundwater and other natural resources within the County of Lake from impairment, pollution, or destruction; to minimize the risk of spreading communicable diseases, and to prevent and avoid other health and ecologic hazards, as well as chemical contamination of lands and waters.

OWTS-301.2 - Minimum Standards: This Ordinance establishes minimum standards to minimize the risk that onsite wastewater treatment systems:

A) contaminate any drinking water supply;

B) are accessible to insects, rodents, or other possible carriers of disease that may come into contact with human food or drinking water;

C) pollute or contaminate the water of any bathing beach or surface waters used for public or domestic water supply or recreational purposes;

D) give rise to a nuisance due to odor or unsightly appearance; and

E) violate any other laws or regulations governing control of water pollution or sewage disposal.

OWTS-301.3 Onsite Wastewater Treatment System Construction: No person shall construct a new or replacement onsite wastewater treatment system, or repair an onsite wastewater treatment system without prior approval of the Health Officer, which shall include the approval of the site plan for the onsite wastewater treatment system, and the issuance of a construction permit, with the exception that a construction permit shall not be required for a repair to an onsite wastewater treatment system.

OWTS-301.4 Alterations or Additions to Properties: No person shall alter, expand, remodel, replace or add to a dwelling or non-residential building served by an onsite wastewater treatment system without prior approval of the Health Officer.

OWTS-301.5 Subdivision of Property: No property, where onsite wastewater treatment systems are proposed to be used, shall be subdivided into two or more lots, nor shall there be a change or rearrangement of lot lines without prior approval of the Health Officer.

OWTS-301.6 - Public Sewer Availability: The Health Officer shall refuse to issue approval for a site plan to install, replace, or repair an onsite wastewater treatment system, or replace system components for an onsite wastewater treatment system where a public sewer, or another Illinois Environmental Protection Agency regulated wastewater treatment and disposal system is available. A sewer shall be deemed available when the nearest property boundary line of the property to be served is located within a reasonable distance of the public sewer, and the connection is permitted by the controlling authority of the public sewer. A reasonable distance shall be 250 feet from the nearest property boundary of a single family dwelling, and 1000 feet from the nearest property boundary of a non-residential, multi-family, or subdivision property boundary. Investigation of sewer availability shall be conducted by the licensed onsite wastewater

system installation contractor or designer. If annexation is required by the controlling authority for permission to connect to the public sewer, the sewer shall be deemed unavailable.

OWTS-301.7 - Property Boundaries: Onsite wastewater treatment systems shall be located on property owned, either in whole or in part, by the owner of the building(s) served.

> **OWTS-301.7.1 Off-Lot Systems:** A system component of an onsite wastewater treatment system may be located on property not owned by the owner of the onsite wastewater treatment system, provided a platted easement exists for the location of the system component and associated conveyance piping.

OWTS-301.8 Regulatory Floodway: No component of an onsite wastewater treatment system shall be installed in a regulatory floodway.

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CHAPTER 4 - UNSANITARY CONDITIONS

SECTION 401.0 -GENERAL

OWTS-401.1 Unsanitary Conditions: It shall be unlawful and shall be considered an imminent health hazard for any person to permit or cause unsanitary conditions due to: the discharge of wastewater derived from domestic sewage with a laboratory confirmed fecal coliform bacteria concentration of greater than 400 colony forming units (cfu) per 100 ml, directly or indirectly to any wetland, surface waters, ground surface, well or abandoned well; the malfunctioning of an onsite wastewater treatment system or system component that results in wastewater backing up into, or not adequately flowing from a building; or allowing the contents of any onsite wastewater disposal system or system component to emit offensive odors or become objectionable so as to be dangerous or prejudicial to health. Further, it shall be unlawful and shall be considered a public nuisance for any person to maintain an onsite wastewater treatment system in a condition that the Health Officer determines is unsanitary, and is detrimental or potentially detrimental to the health and/or safety of the inhabitants of Lake County, Illinois.

OWTS-401.2 Abatement Order: Upon verification of a failing onsite wastewater treatment system by laboratory analysis, dye testing and/or direct visual observation, the Health Officer shall give written notice to the owner and/or legal occupant responsible for such acts ordering abatement of same. Failure of any person to obey such an abatement order shall also constitute a violation of this Ordinance. Any person receiving an abatement order may request a hearing as outlined in Article VI of the Lake County Board of Health Ordinances.

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CHAPTER 5 - PROJECT APPROVAL CATEGORIES

SECTION OWTS-501.0 -GENERAL

OWTS-501.1 Approval Categories: A site plan for the construction of the following onsite wastewater treatment systems, and the following development projects or activities require Health Officer approval for determination of adequate treatment and disposal of wastewater and to protect the health, safety, and general welfare of the people of Lake County.

A) New Onsite Wastewater Treatment Systems
B) Replacement Onsite Wastewater Treatment Systems
C) Alterations or Additions to Properties
    1) Alterations or Additions Not Requiring Replacement of System Components
    2) Alterations or Additions Requiring Replacement of System Components (Alteration-Replacement Onsite Wastewater Treatment Systems)
D) Repairs to an Onsite Wastewater Treatment Systems
E) Subdivisions
F) Onsite Wastewater Treatment Systems for Atypical Wastewater Flow
G) Non-Soil Based Onsite Wastewater Treatment Systems
H) Onsite Wastewater Treatment System Pre-Treatment Component Elimination
I) Artificial Site Drainage Effectiveness Investigation Plans

OWTS-501.2 Required Component Maintenance: When a site plan is approved in accordance with the requirements of this Chapter that includes the relocation or replacement of any existing onsite wastewater treatment system component, or the installation of a new onsite wastewater treatment system component, the owner of record of the onsite wastewater treatment system shall be required to meet the requirements of Chapter 13 and Chapter 15 for the maintenance and inspection of any new or existing component that is subject to the requirements of that Chapter.

SECTION OWTS-502.0 APPROVAL CONDITIONS FOR NEW ONSITE WASTEWATER TREATMENT SYSTEMS

OWTS-502.1 General: Approval of a site plan for the construction of a New Onsite Wastewater Treatment System shall be granted when the requirements of this Section are met.

> **OWTS-502.1.1 Soil Evaluation Report:** A soil evaluation report issued in accordance with the requirements of Chapter 6 determines the soil to be suitable for the projected flow and assigned loading rates in the proposed soil treatment areas.
>
> **OWTS-502.1.2 Plans and Other Information:** A site plan and other required information prepared in accordance with the requirements of Chapters 7 and 8 are submitted.
>
> **OWTS-502.1.3 Primary Soil Treatment Area:** The primary soil treatment area of the proposed onsite wastewater treatment system, of the type specified by the soil evaluation, is designed in an adequately sized area of suitable soils for the proposed flow, the assigned loading rates and required separation distance between the wastewater application point and the limiting layer.

OWTS-502.1.4 Reserve Soil Treatment Area: A reserve soil treatment area exists in suitable soil, as specified in Section OWTS-502.1.3, and can be sized as follows:

A) Equal to the primary soil treatment area when calculated as square footage for systems other than Types 3, 4 and 5.

B) At least equal to 50% of the primary soil treatment basal area for Type 3, 4 and 5 systems when contiguous to the entire length of the downslope of the primary soil treatment area.

OWTS-502.1.5 Primary and Reserve Soil Treatment Area: As an alternative to meeting the requirements of Sections OWTS-502.1.3 and OWTS-502.1.4, the system type as specified by the soil evaluation may be designed in an area of suitable soils for the proposed flow, at the assigned loading rates and required separation distance between the wastewater application point and the limiting layer, reserve soil treatment area may exist in a suitable soil area, the site plan may indicate the installation of 150% of the primary soil treatment area, to be installed as two approximately equal soil treatment areas with a manual or automatic alternating device.

OWTS-502.1.6 Land Slope: The land slope of the primary and reserved soil treatment areas does not exceed 25%.

OWTS-502.1.7 Floodplain Elevation:

A) The wastewater application point of type 3, 4 or 5 systems, or Illinois raised filter bed systems, shall not be located below the base flood elevation.

B) The existing grade over type 1, 2 and drip distribution systems shall not be located below the base flood elevation.

OWTS-502.1.8 Setback Requirements: All components of the primary soil treatment area and the reserve soil treatment areas comply with the setback distances established by Appendix D.

SECTION OWTS-503.0 APPROVAL CONDITIONS FOR REPLACEMENT ONSITE WASTEWATER TREATMENT SYSTEMS

OWTS-503.1 General: Approval for a Replacement Onsite Wastewater Treatment System shall be granted when the requirements of this Section are met.

OWTS-503.1.1 Soil Evaluation Report: A soil evaluation report issued in accordance with the requirements of Chapter 6 determines the soil to be suitable for the projected flow and assigned loading rates in the proposed soil treatment areas.

OWTS-503.1.2 Site plan and System Design: A site plan prepared in accordance with the requirements of Chapters 7 and 8.

OWTS-503.1.3 Primary Soil Treatment Area: The primary soil treatment area of the proposed onsite wastewater treatment system, of the type specified by the soil evaluation, is designed in an adequately sized area of suitable soils for the proposed flow, the assigned loading rates and required separation distance between the wastewater application point and the limiting layer.

OWTS-503.1.4 Land Slope: The land slope of the primary soil treatment area does not exceed 25%.

OWTS-503.1.5 Floodplain Elevation:

A) The wastewater application point of type 3, 4 or 5 systems, or Illinois raised filter bed systems, shall not be located below the base flood elevation.

B) The existing grade over type 1, 2 and drip distribution systems shall not be located below the base flood elevation.

OWTS-503.1.6 Existing Components: Components not proposed for replacement shall:

OWTS-503.1.6.1 Be inspected by a Lake County licensed onsite wastewater treatment system installation contractor to determine if the component in question is in sound condition and can be expected to function as designed and originally installed. The installation contractor performing the inspection shall submit a report of the inspection that indicates that the component in question is in sound condition and can be expected to function as designed and originally installed.

OWTS-503.1.7 Setback Requirements: All components of the primary system and the reserve soil treatment area, if proposed, comply with the setback distances established by Appendix D.

OWTS-503.2 Compliance Impossible: Approval of a site plan for the construction of a Replacement Onsite Wastewater Treatment System to correct a failing onsite wastewater treatment system may be approved when the requirements of Section OWTS-503.1 cannot be met when the Health Officer determines that the proposal:

A) is in substantial and reasonable compliance with these requirements; and

B) is protective of the health of the public and the natural resources of the County of Lake.

The Health Officer may place restrictions upon the use of the system to reduce flow and/or manage the risk of domestic

sewage on the ground surface, entering a limiting layer and/or discharging to a surface water resource. Such restrictions shall be recorded as a covenant with the property at the Lake County Recorder of Deeds Office and shall run with the land.

OWTS-503.2.1 System Design Approval Criteria: When considering the approval of a site plan for the construction of a Replacement Onsite Wastewater Treatment System when compliance with the requirements of Section OWTS-503.1 is impossible, the Health Officer shall apply the criteria described in this Section, and shall issue approval when the requirements of this Section are met. Emphasis shall be for treatment and dispersal of wastewater onsite. Site accessibility, available space, local regulations, and/or existing structural conditions may preclude some actions.

A) When site conditions preclude the ability to meet the requirements of Section OWTS-503.1.3, Section OWTS-503.1.4, Section OWTS-503.1.5, and/or Section OWTS-503.1.7, the following improvements shall be considered:

1) Addition of a pretreatment component certified to produce Class I effluent to compensate for reduced setback distances and undersized soil treatment components.

2) Addition of a pretreatment component certified to produce Class I effluent to recover function of a previously malfunctioning soil treatment component.

B) When existing soil conditions fail to meet the requirements of Section OWTS-503.1.3 or Section OWTS-503.1.5, the following improvements shall be considered, in descending order of desirability, when supplemented by a pretreatment component certified to produce Class I effluent:

1) The elevation of the grade, raised by importing sand fill as a filter media to overcome the soil limitation subject to an approved site development plan and compensatory storage requirements, when applicable. The application point of the soil treatment component shall be located to create an unsaturated soil treatment zone below the wastewater application point.

2) A bottomless media filter subject to: appropriate loading rates of the filter and dispersal soil; acceptable application point (above saturated elevation) elevation of the bottom of the media; and the presence of permeable subsoil which will accept the effluent directly from the filter or from imported permeable soil under the filter, subject to an approved site development plan and compensatory storage requirements, when applicable.

3) The wastewater stream separated into gray water and black water with treatment and dispersal requirements commensurate with the strength of the wastewater such that black water shall receive the higher degree of treatment.

4) A holding tank(s) to supplement the existing onsite wastewater treatment system on properties lacking any area for a soil treatment component as follows:

a) At the lowest invert elevation of the system to capture wastewater unable to be absorbed by an upstream soil treatment system.

b) As a separate zone for alternating use and/or separated flows.

5) Discharge of effluent to an effluent receiving trench with an overflow invert elevation at or above the top of the gravel/media in the receiving trench. The discharge from the effluent receiving trench shall meet the requirements of Section OWTS-1303.0.

6) A surface discharging onsite wastewater treatment system meeting requirements of Section OWTS-1303.0.

OWTS-503.3 System Design Approval Criteria – Performance-Based Proposals: As an alternative to meeting the requirements of Section OWTS-503.1 and Section OWTS-503.2.1 the Health Officer shall consider the approval of a site plan to install an onsite wastewater treatment system when the proposal clearly and convincingly establishes that the requirements of Sections OWTS-503.2.A, OWTS-503.2.B and OWTS-702.0 are met. In approving such a proposal, and in addition to any restrictions stipulated in Section OWTS-503.2, the Health Officer may require, as a condition of the approval, routine and ongoing monitoring, inspection and/or sampling of the treated wastewater to confirm that the onsite wastewater treatment system is performing as designed, and in accordance with Section OWTS-702.0. Any such conditions shall be recorded as a covenant with the property at the Lake County Recorder of Deeds Office and shall run with the land.

SECTION OWTS-504.0 APPROVAL CONDITIONS FOR ALTERATIONS TO PROPERTIES

OWTS-504.1 General: No building or property served by an onsite wastewater treatment system may be added to or altered without prior approval of the Health Officer.

OWTS-504.1.1 Building and Site Plans: A proposal to the Health Officer for an alteration or addition to a property served by an onsite wastewater treatment system must include a building plan depicting the existing and proposed final floor plan, and must also indicate any proposed site alterations.

OWTS-504.2 Approval for Alterations Not Requiring Replacement of System Components: When the Health Officer determines that the proposed property alteration project does not conflict with the setback distances in Appendix D, and does not otherwise impact the onsite wastewater treatment system by increasing water usage, wastewater flow, or the strength of the wastewater, the Health Officer shall approve the project without requiring replacement of onsite wastewater treatment system components, and in accordance with the requirements of this Section.

OWTS-504.2.1 Proposals Not Resulting in Increased Water Usage: Proposals for an alteration or addition to a dwelling or non-residential building that will not result in increased water usage, as defined in this Ordinance, shall be approved when the following requirements are met:

A) A site plan indicates the proposal meets the required setbacks to all existing components of the primary onsite wastewater system and reserve soil treatment area, if applicable, as established by Appendix D.

B) A search of Lake County Health Department records indicates satisfactory past performance of the onsite wastewater treatment system, and that any required system management activities and reports are up-to-date, current and indicate that the system is functioning in a satisfactory manner.

OWTS-504.2.2 Proposals to Replace Building - Same Footprint: Proposals to replace an existing dwelling or non-residential building when the dwelling or non-residential building is proposed in the same footprint and location as the existing structure shall be approved when the requirements of this Section are met. In the case of a catastrophic loss caused by fire, flooding, wind, collapse, and/or life safety issues, the owner of record at the time of loss shall submit a proposal for replacing the lost building within 1 (one) year of the occurrence of the damage to the building.

A) A site plan indicates the proposal meets the required setbacks to all existing components of the primary onsite wastewater treatment system and reserve soil treatment area, if applicable, as established by Appendix D, or a site plan indicates the proposal does not meet the required setbacks to all existing components of the primary onsite wastewater treatment system and reserve soil treatment area, if applicable, as established by Appendix D, but the proposal meets the requirements of Section OWTS-503.2. A system component that does not meet the setback requirements established by Appendix D may be replaced in accordance with the requirements of Section OWTS-505.0.

B) The new dwelling or non-residential building will not result in increased water usage, as defined in this Ordinance.

C) A search of Lake County Health Department records indicates satisfactory past performance of the onsite wastewater treatment system, and that any required system management activities and reports are up-to-date, current and indicate that the system is functioning in a satisfactory manner.

D) All of the existing wastewater disposal system components will continue to be used.

OWTS-504.3 Approval for Alterations Requiring Replacement or Removal of System Components: When a proposed property alteration project requires the relocation or removal of any component of an onsite wastewater treatment system because of conflict with the setback distances in Appendix D, except as specified in Section OWTS-504.2.2.A, or when the project otherwise impacts the onsite wastewater treatment system by resulting in increased water usage, increased wastewater flow or strength of the wastewater, the Health Officer shall require approval of site plan to construct an Alteration-Replacement Onsite Wastewater Treatment System as a condition for approval of the property alteration project. Such approval may consist of the approval of a site plan to replace onsite wastewater treatment system components or the replacement of the entire onsite wastewater treatment system,

OWTS-504.3.1 Replacement of a System Component Other than the Soil Treatment Component: The Health Officer shall approve a site plan to construct an Alteration-Replacement Onsite Wastewater Treatment System that does not include the replacement of the soil treatment component when the proposal for the system meets the requirements of Sections OWTS-503.1.2 and OWTS-503.1.7. The requirements of Section OWTS-503.1.6 shall also apply to existing system components are not replaced.

OWTS-504.3.2 Soil Treatment Component Replacement With or Without Replacement of Other System Components: The Health Officer shall approve a site plan to construct an Alteration-Replacement Onsite Wastewater Treatment System that includes the replacement of the soil treatment component when the proposal meets the requirements of Section OWTS-503.1, though the requirements of Section OWTS-503.1.6 shall apply only when existing system components are not replaced. The following alterations to properties require the approval of a site plan to construct an Alteration-Replacement Onsite Wastewater Treatment System in accordance with the requirements of this Section:

OWTS-504.3.2.1 Proposals Resulting in Increased Water Usage: Proposals for an alteration or addition to a dwelling or non-residential building that result in increased water usage, as defined in this Ordinance.

OWTS-504.3.3 Soil Treatment Area Reduction for Setback Compliance: When the proposed property alteration project does not comply with the setback

distance requirements established in Appendix D, the Health Officer shall approve the removal of a portion of the soil treatment component of the system to meet a setback distance requirement when the conditions and requirements of this Section and Section OWTS 504.3.1 are met.

OWTS-504.3.3.1 Reduction of Up To 10%: The soil treatment area may be reduced up to 10% upon the Health Officer's review and approval of a report prepared by a licensed septic system installation contractor or designer, signed and dated, detailing the size of the components of the system, current performance and integrity of all tanks, controls and distribution system. The report shall also indicate any ponding of the soil treatment component(s) and the level of any such ponding, and shall indicate that the reduction in up to 10% of the soil treatment are will not negatively impact the overall functioning of the onsite wastewater treatment system.

OWTS-504.4 Approval for Alterations Requiring Conceptual Site Plans: When a proposed property alteration project meets the conditions described in this Section, the Health Officer shall approve the proposal when the requirements, as specified by this Section, are met.

OWTS-504.4.1 Alterations With an Increase in Square Footage Between 50% and 75%: Proposals for an alteration or addition to a dwelling that do not result in increased water usage, as defined in this Ordinance, with the exception that the proposal includes a square footage increase of between 50% and 75% may be approved without meeting the requirements of Section OWTS-503.1, if the following requirements are met:

A) Submission of a conceptual site plan to construct an Alteration-Replacement Onsite Wastewater Treatment System that indicates that the requirements of Section OWTS-503.1 can be met if the existing onsite wastewater treatment system fails, as defined in Section OWTS-202.0, as a result of the increase in square footage. The requirements of Section OWTS-503.1.6 shall apply only when existing system components are not replaced.

B) Submission of a report prepared by a licensed onsite wastewater treatment system installation contractor or designer, signed and dated, detailing the size of the components of the system, current performance and integrity of all tanks, controls and distribution systems. The report shall include:

1) A calculation of the current used and unused capacity of the soil treatment component, including a description of any ponding of the soil treatment component(s) and the level of any such ponding.

2) An indication that the existing onsite wastewater treatment system components are operating as designed and, in the professional judgment of the evaluator, that the increase in building square footage will not negatively impact the overall functioning of the onsite wastewater treatment system.

3) An indication that the wastewater application point of an existing type 3, 4 or 5 system is not located below the base flood elevation, or that the existing grade over an existing in-ground distribution system is not located below the base flood elevation.

4) An indication that the system does not contain a cesspool or seepage pit as a system component.

5) The results of a dye test of the onsite wastewater treatment system, indicating that the system is not failing as defined in Section OWTS-202.0.

C) A search of Lake County Health Department records indicates satisfactory past performance of the onsite wastewater treatment system, and that any required system management activities and reports are up-to-date, current and indicate that the system is functioning in a satisfactory manner.

SECTION OWTS-505.0 APPROVAL CONDITIONS FOR REPAIRS TO ONSITE WASTEWATER TREATMENT SYSTEMS

OWTS-505.1 General: Approval for a repair to an onsite wastewater treatment system shall be limited to the work described under the definition of "Repair to Onsite Wastewater Treatment System" in Section OWTS-202.0, and shall be granted when the requirements of this Section are met.

OWTS-505.1.1 Site Plan and System Design: A site plan prepared in accordance with the requirements of Chapters 7 and 8.

OWTS-505.1.2 Setback Requirements: All system components being replaced comply with the setback distances established by Appendix D.

OWTS-505.2 Emergency Replacement of Septic Tank, Lift Station or Aerobic Treatment Unit: A licensed onsite wastewater treatment system installation contractor may replace a septic tank, lift station or aerobic treatment unit prior to receiving site plan approval if a part of the component has collapsed or the component is structurally weakened in such a way that it creates a health or safety hazard. Installation of the component(s) may proceed under these conditions:

A) The licensed onsite wastewater treatment system installation contractor shall notify the Health Officer of the circumstances of the emergency situation, the location of the property in question, and the component(s) that he or she intends to replace prior to installation of the component(s).

B) The licensed onsite wastewater treatment system installation contractor shall provide assurance to the Health Officer that the installation of the component(s) will meet the setback and sizing/capacity requirements of Section OWTS-505.1.

C) The licensed onsite wastewater treatment system installation contractor shall pay the plan review fee in accordance with Lake County Board of Health Ordinance Article XIII prior to installation of the system component(s).

D) After the system component(s) has/have been installed the licensed onsite wastewater treatment system installation contractor shall:

1) request an inspection of the system component(s) in accordance with the requirements of Section OWTS-910.0; and

2) submit an as-built site plan that meets the requirements of Section OWTS-803.0.

OWTS-505.3 Compliance Impossible: When the requirements of Section OWTS-505.1 cannot be met, the Health Officer shall consider for approval the repair to an onsite wastewater treatment system in accordance with Sections OWTS-503.2.A and OWTS-503.2.B.

SECTION OWTS-506.0 APPROVAL CONDITIONS FOR PROPOSED SUBDIVISIONS

OWTS-506.1 General: When onsite wastewater treatment systems are to be used for a subdivision, the applicant shall submit, for review by the Health Officer, a soil suitability report and/or soils evaluation prepared by a Lake County licensed Soil Classifier/Soil Scientist in accordance with the requirements of Chapter 6, that establishes that each proposed lot contains an area suitable for an onsite wastewater treatment primary and reserve soil treatment area. Proposed subdivisions shall be reviewed for the following:

OWTS-506.1.1 Suitability: The suitability of each lot shall be determined by the results of the soil evaluations that are conducted in accordance with the requirements of Chapter 6, and by the platting of proposed lots in accordance with the requirements of Chapter 8.

OWTS-506.1.2 Subdivision Plans: An Illinois Licensed Professional Engineer shall prepare, seal and sign plans for a subdivision. Any onsite wastewater treatment system depicted on the plans shall be designed by a licensed onsite wastewater treatment system designer.

OWTS-506.1.3 Review of Plans: Every lot served by an onsite wastewater treatment system shall have an area of suitable soil for wastewater disposal sufficient for both a primary and a reserve soil treatment area, with respect to soil conditions and system design.

OWTS-506.1.4 Area Protection: All designated primary and reserve soil treatment areas must be protected from damage during the construction of the infrastructure of the subdivision. Temporary fencing shall be placed to protect soil treatment areas.

SECTION OWTS-507.0 APPROVAL CONDITIONS FOR ONSITE WASTEWATER TREATMENT SYSTEMS FOR ATYPICAL WASTEWATER FLOW

OWTS-507.1 General: When an onsite wastewater treatment system has atypical wastewater flow as described in this Section, the Health Officer may require a system design, construction plan, construction procedure, inspection schedule and method, system materials, or other agreements and conditions in addition to the requirements of Section OWTS-502.0 through Section OWTS-505.0.

OWTS-507.1.1 Description of Atypical Wastewater Flow: The following conditions describe and define atypical wastewater flow and render the onsite wastewater treatment system subject to the requirements of the entirety of this Section:

A) **Projected Wastewater Flow:** The projected wastewater flow exceeds one thousand-five hundred gallons per day (1500 gpd);

B) **Shared Systems:** Any part of the proposed onsite wastewater treatment system is shared by two or more dwellings or non-residential buildings, including community systems or clustered systems;

C) **Collection System:** The wastewater collection system is of low pressure sewer design with septic tank effluent pump units (STEP tanks) or grinder pump units;

D) **High Strength Wastewater:** The wastewater influent quality is projected to exceed 300 mg/L BOD_5.

E) **Wastewater Reuse or Recycling:** Any portion of the treated wastewater is proposed for reuse or recycling.

OWTS-507.2 Pre-Proposal Review and Determination of Additional Requirements: When an applicant proposes to construct a new or replacement onsite wastewater treatment system, or repair an onsite wastewater treatment system that has atypical wastewater flow as described in this Section, the Health Officer shall require a pre-review of the proposal to determine and establish additional requirements, if any, appropriate to the proposal. The review shall consider the elements of the proposal

that may stress the onsite wastewater treatment system, such as waste strength (BOD, solids, greases and oils, etc.), peak flows, seasonal flow variations, soil or site limitations, and elements of the proposal that may require special arrangements for access or maintenance, such as shared ownership.

OWTS-507.2.1 Pre-Proposal Review Meeting: As part of the pre-review, the Health Officer shall require a meeting with the applicant and/or individuals involved with the design of the system and project. Any additional requirements imposed by the Health Officer shall be established in this meeting, and shall be agreed to by the Health Officer and the applicant and/or individuals involved with the design of the system and project prior to the Health Officer approving the proposal.

SECTION OWTS-508.0 APPROVAL CONDITIONS FOR NON-SOIL BASED ONSITE WASTEWATER TREATMENT SYSTEMS

OWTS-508.1 General: Non-soil based systems shall include holding tanks and surface discharging onsite wastewater treatment systems. These systems shall be approved only for uses specified in this Section and shall not be approved in lieu of a reserve soil treatment area when required. Subject to the restrictions of Section OWTS-711.0, the uses for, or conditions under which a non-soil based onsite wastewater treatment system may be approved include:

OWTS-508.2 Conditions For the Approval of Holding Tanks: A holding tank may be approved by the Health Officer in the following conditions and for the following uses:

OWTS-508.2.1 Awaiting Public Sewer Extension: A holding tank may be approved as a temporary onsite wastewater treatment system while awaiting the extension of a public sewer, when the provision of the public sewer will occur within one year.

OWTS-508.2.1.1 Proof of Eventual Connection: Approval for the proposed connection and the time frame in which the sewer will be available shall be provided in documentation from the controlling authority of the sewer.

OWTS-508.2.2 Awaiting Installation of an Onsite Wastewater Treatment System: A holding tank may be approved as a temporary onsite wastewater treatment system when a soil based onsite wastewater treatment system is approved, but its construction is delayed by weather conditions. The use of a temporary holding tank shall not exceed 180 days.

OWTS-508.2.3 Sanitary Dumping Station: A holding tank may be approved as a sanitary dumping station to receive wastewater from the holding facilities of recreational vehicles.

OWTS-508.2.4 Non-Residential Building - Low Flow: A holding tank may be approved for onsite wastewater treatment system for a non-residential building when the daily wastewater flow is projected to be less than 150 gallons per day.

OWTS-508.2.5 Seasonal Home - Inaccessible: A holding tank may be approved for onsite wastewater treatment system for a seasonal home on land inaccessible to vehicles.

OWTS-508.2.6 Overflow Capture: A holding tank may be approved for use as an overflow capture tank in accordance with the requirements of Section OWTS-503.2.1.B.4.

OWTS-508.2.7 Waste Not Allowed in a Soil Based Onsite Wastewater Treatment System: A holding tank may be approved to receive the discharge from fixtures or drains that receive waste products such as automotive grease, oils, solvents or chemicals that are not allowed to be discharged into an onsite wastewater treatment system. These waste products shall be handled according to rules for the disposal of oil, gas and grease promulgated under the Environmental Protection Act, or according to 35 Ill. Adm. Code Subtitle G, or shall be taken to an oil and gas reclamation center. Note: Also see Illinois Plumbing Code (77 Ill. Adm. Code 890). Holding tanks to be utilized for applications within this Section shall be listed and labeled by Underwriters Laboratories, and constructed of materials approved for gas and oil interceptors as specified in 77 Ill. Adm. Code 890.520, and shall be properly anchored to prevent flotation.

OWTS-508.2.8 Vault Privy: A holding tank may be approved for onsite wastewater treatment system for the collection of human waste where there are toilet facilities but no potable water source to the building, such as a comfort station.

OWTS-508.3 Conditions For the Approval of Surface Discharging Onsite Wastewater Treatment Systems: A surface discharging onsite wastewater treatment system may be approved by the Health Officer in the following conditions and for the following uses:

OWTS-508.3.1 Failing Onsite Wastewater Treatment System: A surface discharging onsite wastewater treatment system shall only be approved to replace an onsite wastewater treatment system that is documented to be failing as defined in Section OWTS-202.0 and in when the requirements of Section OWTS-503.2 are met.

SECTION OWTS-509.0 APPROVAL CONDITIONS FOR THE ELIMINATION OF ABANDONED ONSITE WASTEWATER TREATMENT SYSTEM COMPONENTS

OWTS-509.1 General: An onsite wastewater treatment system component shall be considered abandoned when it is no longer in use, is in such a state of disrepair that its intended function and performance cannot be restored, or is not in use and is in a condition that presents a health or safety hazard to the people of Lake County. An abandoned onsite wastewater treatment system component, other than a soil treatment component, shall be eliminated as described in this section. These system components include, but are not limited to:

A) Septic/trash tank
B) Lift station
C) Holding tank
D) Vault privy
E) Grease tank/interceptor
F) Seepage pit
G) Cesspool

OWTS-509.2 Site Plan Approval: When the eliminated system component will not be replaced, a site plan shall submitted that meets the requirements of Section OWTS-803.0.

OWTS-509.3 Procedure: Elimination of system components shall be performed as follows:

A) The contents of the system component must be pumped by a Lake County licensed septic tank pumper.

B) The system component may be unearthed and removed or destroyed in place. If destroyed in place the floor and walls shall be cracked or crushed so the remaining pieces will not hold water.

C) After removing or destroying the system component, the remaining cavity shall be filled with soil. The backfill soil shall be mounded to compensate for settling.

OWTS-509.4 Final Approval: The Health Officer shall issue final approval of the elimination of a system component when:

A) The licensed onsite wastewater treatment system installation contractor requests an inspection in accordance with the requirements of Section OWTS-910.0, and the Health Officer observes the elimination of the system component during, or immediately after the process; or

B) The licensed onsite wastewater treatment system installation contractor submits a signed and dated document to the Health Officer indicating the date that the system component(s) was eliminated, and that the procedure was in accordance with the requirements of Section OWTS-509.3. The Health Officer shall verify on-site that the system component(s) has been eliminated.

SECTION OWTS-510.0 APPROVAL CONDITIONS FOR ARTIFICIAL SITE DRAINAGE EFFECTIVENESS INVESTIGATION PLANS

OWTS-510.1 General: Approval of an artificial site drainage effectiveness investigation plan shall be conducted in accordance with the requirements of Section OWTS-604.2.

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CHAPTER 6 - SITE SUITABILITY

SECTION OWTS-601.0 SOIL EVALUATION

OWTS-601.1 General: All proposed soil based onsite wastewater treatment systems shall be designed based on soil characteristics of the soil as identified by a Lake County licensed Soil Classifier/Soil Scientist. It is not permissible to deposit fill on a site in an effort to achieve the minimum requirements of this Chapter.

OWTS-601.2 Soil Evaluations by the Health Officer: Soil evaluations conducted by the Health Officer shall be conducted by appointment and shall be completed by the Health Officer within fifteen (15) days of the receipt of the request and when the conditions of this section are met.. The applicant requesting the soil evaluation shall provide as follows:

OWTS-601.2.1 Proposed Site: The proposed site shall be reasonably cleared of brush, weeds, and tall grass. The applicant shall assure that no one drives equipment on sites that are wet enough to become compacted and/or create ruts in the soil.

OWTS-601.2.2 Lot Corners: The lot corners shall be marked on individually platted lots, or permanent reference points established for proposed subdivisions.

OWTS-601.2.3 Soil Pits: Soil observation pits shall be excavated to a minimum of twenty-four inches (24") in width, and shall be sixty inches (60") deep.

OWTS-601.2.3.1 Soil Cores: The Health Officer may accept soil cores as meeting the requirement of this Section.

OWTS-601.3 Minimum Number of Observation Points: Soil observation points can be soil pits or soil cores as specified in this Section.

OWTS-601.3.1 Individual Sites: On individual sites, a minimum of four (4) observation points is required with at least one (1) point located in an area lower in elevation than the proposed primary and reserve soil treatment area.

OWTS-601.3.2 Proposed Subdivisions: A minimum of one observation point shall be required at each intersection of the lines of a two hundred foot (200') grid established on the parcel(s). Observation points between the grid points may be required to accurately establish boundaries between soil mapping units. Additionally, at least one observation point shall be located on each proposed lot.

OWTS-601.3.2.1 Smaller Parcels: On parcels too small to lay out a 200' foot grid, a smaller grid, as approved by the Health Officer, or individual site soil evaluation described in Section OWTS-601.3.1 may be used to identify primary and reserve soil treatment areas.

OWTS-601.3.3 Additional Observation Points: As determined by the Health Officer, additional observation points may be necessary for accurate and appropriate evaluation of an individual site or parcel when there is

concern about the consistency and landscape association of the soils.

SECTION OWTS- 602.0 SOIL PROFILE DESCRIPTIONS

OWTS-602.1 General: Soil characteristics shall be described based upon United States Department of Agriculture Natural Resources Conservation Service (NRCS) National Standards. Soil profile descriptions shall include depth in inches from the ground surface to changes in soil texture, soil structure, soil consistence and/or compaction, observed saturation, soil coloration, and redoximorphic features indicative of saturation including, but not limited to, common (2% - 20%) or greater low chroma redox depletions (equal to or less than two (2) and a value of four (4) or more based upon Munsell color chart). Descriptions shall be recorded to a depth of sixty inches (60").

OWTS-602.2 Additional Determination and Assignments: In addition to the meeting the requirements of Section OWTS-602.1, in describing soil characteristics, a Lake County Licensed Soil Classifier/Soil Scientist shall make determinations and assignments based upon soil profile descriptions as follows:

OWTS-602.2.1 Soil Resource Group: Each soil profile description shall be classified in accordance with the requirements of Appendix B to establish a soil resource group, soil series or classification, the depth to a limiting layer and observed water, if present.

OWTS-602.2.2 Wastewater Loading Rates: Each soil profile description shall assign maximum wastewater loading rates in accordance with the requirements of Appendix B, as follows:

A) Soil profile descriptions shall be segregated by horizon.
B) Each segregated horizon shall be assigned a loading rate between 0 gallons per day per square foot (gpd/ft^2) and 0.8 gpd/ft^2.

SECTION OWTS-603.0 MINIMUM SOIL CONDITIONS

OWTS-603.1 Soil Suitability: The soil located in a proposed primary or reserve soil treatment area must meet the requirements of this Section.

OWTS-603.1.1 Seasonally Saturated: The soil is not seasonally saturated to within six inches (6") of the ground surface.

OWTS-603.1.2 Texture, Structure, and Consistence: The texture, structure, and consistence are such that the loading rate, assigned in accordance with the requirements of Section OWTS-602.2.2 and Appendix B, is greater than zero (0) gpd/ft^2.

SECTION 604.0 SOIL LIMITATIONS

OWTS-604.1 Limiting Layer Remediation: If a soil layer has a soil loading rate of 0.0 gpd/ft^2, either due to existing conditions, or caused by activity known to compact soil (e.g. vehicular/machine traffic, fill being deposited) deep chisel plowing may be performed to attempt to render the soil suitable. Suitability and loading rate shall be determined by a soil evaluation conducted by a Lake County Licensed Soil Classifier/Scientist in accordance with the requirements of Chapter 6, after the deep chisel plowing has occurred. Deep chisel plowing shall be performed as described in this Section, based on the conditions of the site.

A) For soil profiles comprised of 12 inches (12") or more of fill deposited at the surface, chisel plowing shall be performed to a minimum depth of 12 inches (12").

B) When one or more suitable surface horizons overlays a thin limiting layer that in turn overlays suitable soil, and the soil loading rate of the soil horizon below the limiting layer is greater than or equal to 0.2 gpd/ft^2, chisel plowing shall extend through the limiting layer.

C) When limiting surface soil horizon(s) overlay suitable soil, chisel plowing shall extend through the limiting soil horizon.

OWTS-604.2 Artificial Drainage Effectiveness Investigation: When a soil evaluation, performed in accordance with the requirements of Chapter 6, establishes that soil is not suitable because it does not meet the requirements of Section OWTS-603.1.1, the Health Officer may approve an onsite wastewater treatment system when artificial drainage creates conditions such that the depth from the ground surface to the saturated soil is ten inches (10") or more, and the proposed onsite wastewater treatment system meets the requirements of Chapter 7.

OWTS-604.2.1 Monitoring: The artificial drainage system shall be installed as proposed, and the saturation depth of the soil shall be monitored, using monitoring wells or piezometers, by an Illinois Licensed Professional Engineer or a Certified Professional Soil Classifier/Soil Scientist and the Lake County Health Department.

OWTS-604.2.2 Agreement for Investigation Plan: The construction, installation and location of the monitoring wells or piezometers, and the frequency of observations shall be established through a written agreement between the Health Officer and the onsite wastewater treatment system designer.

OWTS-604.2.3 Monitoring Period: Monitoring shall occur at least weekly during March, April and May with the first reading occurring no later than March 15th.

OWTS-604.2.4 Monitoring Data: Monitoring data may be used to establish the limiting layer as follows:

OWTS-604.2.4.1 Monitoring Data Submission: All monitoring data shall be submitted to the Health Officer no more than 60 days after the conclusion of the investigation.

OWTS-604.2.4.2 Depth Observations and Suitability Assessment: The drains shall maintain an unsaturated zone of at least ten inches (10") below the ground surface at all times. If at any time, water is observed at a depth shallower than ten inches (10"), a reading shall be conducted 2 days later. If water is shallower than ten inches (10") at this subsequent reading, the site shall be considered unsuitable for a soil based onsite wastewater treatment system.

OWTS-604.2.4.3 Monitoring Data Validity: Monitoring shall only be valid if the nearest precipitation recording station records a precipitation amount of at least 90% of the historical average during March, April and May. Artificially flooding the soil area being monitored to simulate naturally occurring seasonal saturation shall not substitute for precipitation.

SECTION OWTS-605.0 CONFLICT

OWTS-605.1 Resolution: Whenever there is a substantive disagreement between the Lake County Health Department and any Lake County Licensed Soil Classifier/Soil Scientist, the Health Officer shall, at the request of either party, solicit the assistance of the Natural Resources Conservation Service (NRCS) Area Resource Soil Scientist, or other NRCS employee who is certified as a Soil Classifier/Soil Scientist as defined in Chapter 2, for an additional professional opinion.

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CHAPTER 7 - ONSITE WASTEWATER TREATMENT SYSTEM DESIGN

SECTION OWTS-701.0 GENERAL

OWTS-701.1 Soil Based and Non-Soil Based Systems: Proposed onsite wastewater treatment system (OWTS) designs shall meet the requirements of this Chapter. Onsite wastewater treatment systems shall be classified into two general categories: soil based and non-soil based.

OWTS-701.2 Design Sizing: All system components of an onsite wastewater treatment system shall be properly sized for the projected wastewater flow as established by Appendix C.

OWTS-701.3 Minimum Lateral Setback Distances: Onsite wastewater treatment systems and system components shall be located no closer than the minimum lateral setback distances to the features specified in Appendix D. When no minimum lateral setback distance and/or feature is specified, the Health Officer shall determine a reasonable distance to the feature.

OWTS-701.4 Prohibited Wastes: Onsite wastewater treatment systems shall receive only domestic sewage. Water discharges from footing drains, water softeners, air conditioners, heating units, water cooled ice machines, humidifiers and dehumidifiers, or other similar sources shall not be discharged to an onsite wastewater treatment system. Automotive or industrial greases, oils, solvents or other similar wastes shall be discharged into a holding tank system in accordance with the requirements of Section OWTS-508.2.7.

OWTS-701.5 Construction and Materials: Onsite wastewater treatment systems shall be designed to facilitate their construction in accordance with the requirements of Chapter 9 of this Ordinance, and shall specify and incorporate approved materials in accordance with the requirements of Chapter 10.

SECTION OWTS-702.0 PERFORMANCE OBJECTIVES FOR SOIL BASED ONSITE WASTEWATER DISPOSAL SYSTEMS

OWTS-702.1 Performance Objectives: Soil based onsite wastewater treatment systems shall meet the performance objectives described in this Section, as the objectives apply to the system type, and shall perform so as not to create an imminent health hazard or a public nuisance.

OWTS-702.1.1 Long Term Wastewater Treatment and Infiltration: Proposed soil based onsite wastewater treatment systems shall be designed to best facilitate the long term treatment and infiltration of wastewater employing the most appropriate soil and linear loading rates taking into consideration vertical and horizontal water movement through the soil, and application methods.

OWTS-702.1.2 System Capacity: Proposed soil based onsite wastewater treatment systems shall be designed to be of adequate capacity to treat and infiltrate the projected daily wastewater flow.

OWTS-702.1.3 Wastewater Treatment: Proposed soil based onsite wastewater treatment systems shall be designed to treat wastewater to the following standards prior to the wastewater coming into contact with a limiting layer: BOD_5 and TSS < 10mg/l; and Fecal Coliform < 1,000 cfu/100 ml. It is recognized that septic tank effluent, solely or comingled with exterior grease interceptor effluent, subjected to the following treatment processes shall meet or exceed the treatment standards specified in this Section:

A) Unsaturated flow through at least 24 inches (24") of year-round unsaturated soil, as determined in accordance with the requirements of Chapter 6.

B) Unsaturated flow through at least 16 inches (16") of year-round unsaturated soil, as determined in accordance with the requirements of Chapter 6, and after receiving treatment by a pretreatment component certified by an ANSI accredited third party testing and certification organization to meet NSF ANSI Standard Number 40, maintained as follows:

1) Service, inspection and necessary maintenance shall be performed in accordance with the requirements of

Chapter 13, by a service provider licensed in accordance with the requirements of Section OWTS-1105.0.

SECTION OWTS-703.0 GENERAL REQUIREMENTS FOR SOIL BASED ONSITE WASTEWATER DISPOSAL SYSTEMS

OWTS-703.1 General: Proposed soil based onsite wastewater treatment systems shall meet the design requirements specified in this Chapter, as the requirements apply to the system type, and in accordance with the design requirements further specified in the incorporated materials of Appendix A for a system type not specified.

OWTS-703.2 Suitable Soil: A soil treatment component and its required reserve soil treatment area shall be located in suitable soil in accordance with the requirements of Section OWTS-603.0. The shallowest limiting layer depth of the soil borings that define the area proposed for the soil treatment component shall determine the system type.

OWTS-703.3 Minimum Vertical Separation Distance: Proposed soil based onsite wastewater treatment systems shall be designed to use a system type most appropriate for a site's soil characteristics in order to maintain a minimum vertical separation distance between the limiting layer and the wastewater application point.

OWTS-703.4 System Type: Any soil treatment system and its required reserve soil treatment area shall be of an onsite wastewater treatment system type as specified by Table B.3, and the design for that onsite wastewater treatment system type shall conform to the requirements of this Section and any applicable elements of materials incorporated by Appendix A. An onsite wastewater treatment system may be comprised of two (2) different types of systems.

OWTS-703.5 Site Contour: Any primary soil treatment component and its required reserve soil treatment area shall be designed to be parallel to the site contour. Soil treatment systems shall not be situated on slopes that are concave to the extent that horizontal subsurface movement of wastewater may concentrate that flow in a small downslope area.

OWTS-703.5.1 Tolerance: The maximum variation off contour along the entire length of the soil treatment component shall be no more than 1%.

OWTS-703.5.2 Concave configuration: For type 3, 4 and 5 systems, the maximum deflection of a concave soil treatment component shall be no more than 10%.

OWTS-703.6 Low Pressure Pipe Distribution Networks: Distribution of wastewater into onsite wastewater treatment systems by low pressure pipe (LPP), when part of an onsite wastewater treatment system designed in accordance with the requirements of this Chapter, shall meet the following minimum requirements:

A) Minimum supply/manifold line diameter shall be two inches (2").

B) Minimum lateral wastewater distribution pipe diameter shall be one and one-half inches (1½").

C) Minimum perforation size shall be three-sixteenths inches (3/16").

D) Maximum perforation spacing shall be six feet (6') in Type 1 and 2 systems and three feet (3') in Type 3, 4 and 5 systems.

E) Minimum distal end pressure on any lateral line shall be one foot (1') of pressure head (0.43 psi).

F) Maximum distal end pressure on any lateral line shall be five feet (5') of pressure head (2.16 psi).

G) Construction shall comply with the requirements of Chapter 10, and all materials shall comply with the requirements of Chapter 11.

SECTION OWTS-704.0 DESIGN REQUIREMENTS FOR TYPE 1 AND TYPE 2 SOIL TREATMENT TRENCH SYSTEMS

OWTS-704.1 General: Type 1 and 2 soil treatment trench systems shall be designed to the minimum requirements as follows:

OWTS-704.1.1 Pretreatment: The pretreatment component shall be required based upon the design soil treatment zone in accordance with the requirements of Table B.3.

OWTS-704.1.2 Distribution: Distribution to the soil treatment trench may be by serial distribution, or by equal flow distribution. Piping and distribution device size and material shall comply with the requirements of Chapter 10.

OWTS-704.1.3 Lift Station: Lift stations, if required, shall be sized in accordance with the requirements of Appendix C.

OWTS-704.1.4 Distribution Piping: Distribution into the soil treatment trench shall be by perforated pipe. No perforation shall be located closer than three feet (3') to the proximal end of the soil treatment trench.

OWTS-704.1.5 Piping Invert Elevation: The invert elevation of the distribution pipe shall be a minimum of six inches (6") above the trench bottom.

OWTS-704.1.6 Soil Treatment Area Size Calculation: Only the trench bottom area shall be used in calculating the required soil treatment area. The square footage of trench bottom area shall be equal to the projected flow in gallons per day (gpd) divided by the assigned wastewater loading rate in gallons per day per square foot.

OWTS-704.1.7 Maximum Trench Length: The maximum trench length shall be one hundred feet (100') from the distribution device. All trenches connected to an equal flow distribution box shall be of equal length.

OWTS-704.1.8 Maximum Trench Width: The maximum trench width shall be thirty-six inches (36"); the minimum trench width shall be twelve inches (12").

OWTS–704.1.9 Trench Separation: Trenches shall be separated by a minimum of four feet (4') of undisturbed soil.

OWTS–704.1.10 Minimum Gravel Depth: The minimum depth of gravel in the soil treatment trench shall be 12 inches (12"), with six inches (6") of gravel beneath the distribution pipe and two inches (2") above. Gravel shall not be placed closer than twelve inches (12") to the distribution device.

OWTS–704.1.11 Soil Cover Over Trenches: The maximum depth of soil cover over the top of an soil treatment trench shall be eighteen inches (18"). The minimum depth of soil cover over the top of an soil treatment trench shall be six inches (6")

OWTS–704.1.12 Low Pressure Pipe Distribution: When distribution in a Type 1 or 2 system is by low pressure pipe, the applicable requirements of Section OWTS-703.6 and this Section shall apply.

A) The soil loading rate may be increased by up to 10% above the original soil loading rate.

B) No perforation shall be located closer than five feet (5') to the proximal end of the soil treatment trench.

C) The invert elevation of the distribution line shall be a minimum of six inches (6") above the trench bottom.

D) The square footage of trench bottom area shall be equal to the projected daily flow in gallons per day divided by the assigned wastewater loading rate in gallons per day per square foot.

E) The maximum trench length shall be seventy feet (70') from the manifold connection.

F) The maximum trench width shall be twenty-four inches (24"); the minimum trench width shall be twelve inches (12").

G) Trenches shall be separated by a minimum of four feet (4') of undisturbed soil.

H) The minimum depth of gravel in the soil treatment trench shall be ten inches (10"), with six inches (6") of gravel beneath the pipe and two inches (2") above.

I) Gravel shall not be placed closer than twenty-four inches (24") to the manifold trench.

J) The design of the pressure distribution network shall be in accordance with the requirements of Design of Pressure Distribution Networks For Septic Tank-Soil Absorption Systems as incorporated in Appendix A.

OWTS-704.1.1.13 Seepage Beds: Seepage beds shall be sized at 1.5 times the required trench soil treatment area.

OWTS-704.1.1.14 Leaching Chambers: The soil treatment area per lineal foot for soil absorption components using leaching chambers shall be calculated by multiplying the average inside width of the chamber times an equivalency factor of 1.5. For example:

Using a chamber with an average inside width of 24 inches (24"), the soil treatment area per lineal foot would be calculated as:

$$24 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} \times 1 \text{ ft} \times \frac{1.5}{\text{lineal ft}} = 3 \text{ ft}^2 / \text{lineal ft}$$

For a system that requires 600 feet^2 of soil treatment area, 200 lineal feet of chamber would be required using 24 inch (24") chambers (600 ft^2/ 3 ft^2/lineal foot = 200 lineal feet).

SECTION OWTS-705.0 DESIGN REQUIREMENTS FOR TYPE 3 MODIFIED MOUND SYSTEMS

OWTS-705.1 Type 3 Modified Mound Systems: Type 3 Modified Mound Systems shall be designed to minimum requirements as follows:

OWTS-705.1.1 Pretreatment: The pretreatment component shall be dependent on the design soil treatment zone in accordance with the requirements of Table B.3.

OWTS-705.1.2 Plowing and Filling of Soil Treatment Area: The soil treatment area shall be plowed in accordance with the requirements of Section OWTS-903.0 and filled in accordance with the requirements of Section OWTS-904.0. The fill material shall cover the entire basal area to a maximum depth of six inches (6"). The sand must be placed prior to chisel plowing so it becomes incorporated into the original soil. All vegetation shall be cut to the ground surface and removed from the soil treatment area prior to placing the sand.

OWTS-705.1.3 Distribution Piping: Distribution into the application bed shall be by low pressure pipe (LPP), which shall be installed in accordance with the requirements of Section OWTS-703.6.

OWTS-705.1.4 Lift Station: The lift station shall be sized according to Appendix C.

OWTS-705.1.5 Piping Invert Elevation: The invert elevation of the distribution piping shall be a minimum of twelve inches (12") above original grade.

OWTS-707.1.6 Application Bed Area Size Calculation: The square footage of the application bed shall be equal to the projected daily flow in gallons per day divided by the loading rate of the coarse sand fill, one gallon per day per square foot (1.0 gpd/ft^2) or 1.2 gpd/ft^2, when an aerobic treatment unit is proposed for pretreatment.

OWTS-705.1.7 Soil Treatment Area Size Calculation: The square footage of the soil treatment area shall be equal to the projected daily flow in gallons per day divided by the assigned wastewater loading rate in gallons per day per square foot.

OWTS-705.1.8 Minimum Length: The minimum length of the modified mound soil treatment area shall be limited by the maximum linear loading rate. The linear loading rate is equal to the projected daily flow in gallons per day divided by the total length of the soil treatment area in feet, and shall be limited as follows:

A) Systems on soils in resource groups A, B or C shall be designed with a maximum linear loading rate of eight (8) gallons per day per foot. A maximum of three (3) basal areas may be connected perpendicular to the slope.

B) Systems on soils in resource groups D or E shall be designed with a maximum linear loading rate of four (4) gallons per day per foot. A maximum of two (2) basal areas may be connected perpendicular to the slope.

OWTS-705.1.9 Laterals at Different Elevations: When laterals are at different elevations, a flow control valve shall be used to control the inline pressure of the laterals.

OWTS-705.1.10 Minimum Gravel Depth: The minimum depth of gravel in the modified mound soil treatment area shall be ten inches (10"), with six inches (6") of gravel beneath the pipe and two inches (2") above.

OWTS-705.1.11 Minimum Sand Depth: The minimum depth of coarse sand fill material covering the soil treatment area shall be six inches (6").

OWTS-705.1.12 Minimum Soil Cover: The entire modified mound soil treatment component shall be covered with a minimum of eight inches (8") of topsoil to support vegetative cover. Additional cover shall be placed over the application bed(s) as is necessary to shed storm water.

OWTS-705.1.13 Geotextile Fabric Cover: The application bed shall be completely covered with an appropriate geotextile fabric prior to the placement of topsoil.

SECTION OWTS-706.0 DESIGN REQUIREMENTS FOR TYPE 4 AT-GRADE SYSTEMS

OWTS-706.1 Type 4 At-Grade Systems: Type 4 At-Grade Systems shall be designed to minimum requirements as follows:

OWTS-706.1.1 Pretreatment: The pretreatment component shall be dependent on the design soil treatment zone in accordance with the requirements of Table B.3.

OWTS- 706.1.2 Plowing of Soil Treatment Area: The soil treatment area shall be plowed in accordance with the requirements of Section OWTS-903.0. All vegetation shall be cut to the ground surface and removed from the soil treatment area prior to placing the sand.

OWTS-706.1.3 Distribution Piping: Distribution to and into the soil treatment area shall be by low pressure pipe (LPP), which shall be installed in accordance with the requirements of Section OWTS-703.6.

OWTS-706.1.4 Lift Station: The lift station shall be sized according to Appendix C.

OWTS-706.1.5 Piping Invert Elevation: The invert of the distribution lines shall be a minimum of six inches (6") above original grade.

OWTS-706.1.6 Soil Treatment Area Size Calculation: The square footage of soil treatment area shall be equal to the projected daily flow in gallons per day divided by the assigned wastewater loading rate in gallons per day per square foot.

OWTS-706.1.7 Minimum Length: The minimum length of the at-grade soil treatment area shall be limited by the maximum linear loading rate. The linear loading rate is equal to the projected daily flow in gallons per day divided by the total length of the soil treatment area in feet, and shall be limited as follows:

A) Systems on soils in resource groups A, B or C shall be designed with a maximum linear loading rate of twelve (12) gallons per day per foot. A maximum of three (3) basal areas may be connected perpendicular to the slope.

B) Systems on soils in resource groups D or E shall be designed with a maximum linear loading rate of six (6) gallons per day per foot. A maximum of two (2) basal areas may be connected perpendicular to the slope.

OWTS-706.1.8 Laterals at Different Elevations: When laterals are at different elevations, a flow control valve shall be used to control the inline pressure of the laterals.

OWTS-706.1.9 Minimum Gravel Depth: The minimum depth of gravel in the at-grade soil treatment area shall be ten inches (10"), with six inches (6") of gravel beneath the pipe and two inches (2") above.

OWTS-706.1.10 Minimum Soil Cover Over Gravel: The gravel of an at-grade soil treatment system shall be covered with a minimum of twelve inches (12") of topsoil to support vegetative cover. Additional cover shall be placed as is necessary to shed stormwater.

OWTS-706.1.11 Geotextile Fabric Cover: The gravel shall be completely covered with an appropriate geotextile fabric prior to the placement of topsoil.

OWTS-706.1.12 Other Design Requirements: Type 4 At Grade Systems shall comply with the provisions of the Wisconsin At-Grade Soil Absorption System Siting, Design, and Construction Manual as incorporated in Appendix A.

SECTION OWTS-707.0 DESIGN REQUIREMENTS FOR TYPE 5 MOUND SYSTEMS

OWTS-707.1 Type 5 Mound Systems: Type 5 Mound Systems shall be designed to minimum requirements as follows:

OWTS-707.1.1 Pretreatment: The pretreatment component shall be dependent on the design soil treatment zone in accordance with the requirements of Table B.3.

OWTS-707.1.2 Basal Area, Fill: The basal area is defined, based upon the slope of the site, illustrated in Appendix E.
The basal are shall be plowed in accordance with the requirements of the requirements of Section OWTS-903.0 and filled in accordance with the requirements of Section OWTS-904.0. The fill material shall cover the entire basal area. The fill shall slope away from the top of the application bed at a maximum slope of 3:1 in all directions. All vegetation shall be cut to the ground surface and removed from the soil treatment area prior to placing the sand.

OWTS-707.1.3 Distribution Piping: Distribution to and into the application bed shall be by low pressure pipe (LPP), which shall be installed in accordance with the requirements of Section OWTS-703.6.

OWTS-707.1.4 Lift Station: The lift station shall be sized according to Appendix C.

OWTS-707.1.5 Piping Invert Elevation: The invert of the distribution line(s) shall be a minimum of six inches (6") above the fill material.

OWTS-707.1.6 Application Bed Area Size Calculation: The square footage of the application bed shall be equal to the projected daily flow in gallons per day divided by the loading rate of the coarse sand fill, one gallon per day per square foot (1.0 gpd/ft^2) or 1.2 gpd/ft^2, when an aerobic treatment unit is proposed for pretreatment.

OWTS-707.1.7 Minimum Length: The minimum length of the application bed shall be limited by the maximum linear loading rate. The linear loading rate is equal to the projected daily flow in gallons per day divided by the total length of the application bed in feet, and shall be limited as follows:

A) Type 5 systems on soils in resource groups A, B or C shall be designed with a maximum linear loading rate of eight (8) gallons per day per foot. A maximum of three (3) basal areas may be connected perpendicular to the slope.

B) Type 5 systems on soils in resource groups D or E shall be designed with a maximum linear loading rate of four (4) gallons per day per foot. A maximum of two (2) basal areas may be connected perpendicular to the slope.

OWTS-707.1.8 Laterals at Different Elevations: When laterals are at different elevations, a flow control valve shall be used to control the inline pressure of the laterals.

OWTS-707.1.9 Basal Area Size Calculation: The square footage of the basal area shall be equal to the projected daily flow divided by the assigned soil wastewater loading rate in gallons per day per square foot.

OWTS-707.1.10 Basal Area Minimum Length: The minimum length of the basal area shall be equal to the minimum length of the application bed.

OWTS-707.1.11 Fill Material Placement: The fill material shall be extended beyond the basal area, tapering to grade at 3:1 slope.

OWTS-707.1.12 Minimum Gravel Depth: The minimum depth of gravel in the application bed shall be ten inches (10") with six inches (6”) of gravel beneath the pipe and two inches (2”) above.

OWTS-707.1.13 Minimum Sand Depth: The minimum depth of coarse sand fill material covering the basal area shall be twelve inches (12").

OWTS-707.1.14 Minimum Soil Cover: The application bed shall be covered with a minimum of twelve inches (12”) of topsoil. The sand fill of the end slopes and side slopes shall be covered with a minimum of six inches (6”) of topsoil. Additional cover shall be placed over the application bed(s) as is necessary to shed storm water.

OWTS-707.1.15 Geotextile Fabric Cover: The application bed shall be completely covered with an appropriate geotextile fabric prior to the placement of topsoil.

OWTS-707.1.16 Other Design Requirements: Type 5 Mound Systems shall comply with the provisions of the Wisconsin Mound Soil Absorption System Siting, Design, and Construction Manual as incorporated in Appendix A.

SECTION OWTS-708.0 DESIGN REQUIREMENTS FOR DRIP DISTRIBUTION SYSTEMS

OWTS-708.1 Drip Distribution Systems: Drip distribution systems shall be designed, installed, operated and maintained in accordance with the corresponding current manufacturer’s specification manual, with the exception that the requirements of this section shall apply.

OWTS-708.1.1 Pretreatment: Pretreatment shall be by process designed to meet NSF ANSI Standard 40 for wastewater treatment systems.

OWTS-708.1.2 Pretreatment Capacity: The daily design flow, plus the backwash water from the system, shall not exceed the treatment capacity of the pre-treatment device if backwash water discharges to the pre-treatment device.

OWTS-708.1.3 Lift Station: The lift station shall be sized in accordance with Appendix C.

OWTS-708.1.4 Soil Loading Rate: The soil loading rate (in gallons/day/square foot) shall be based upon the least permeable soil encountered within 24 inches (24") below the proposed depth of the drip distribution tubing. The soil loading rate shall be no more than 75% of the loading rate reported on the soil evaluation in accordance with the requirements of Table B.2.

OWTS-708.1.5 Drip Tubing Requirements: Drip tubing installation and configuration shall be as follows:

A) The drip irrigation system shall be configured so that the length of the soil treatment area is at least two times its width.

B) If required, plowing shall be conducted in accordance with the requirements of Section OWTS-903.0.

C) All piping and components shall be installed to allow wastewater to drain back to the pretreatment tank or dosing tank.

D) To allow for drain back, a check valve shall not be installed in the supply and return lines.

E) An audio-visual alarm shall be provided to warn of a high water condition in the dosing tank.

1) The alarm shall be on a separate dedicated electrical circuit.

2) If an alarm is being used by another component of the onsite wastewater system, is compliant with this Section, and is able to connect additional devices, it may be used without the need for an additional alarm.

OWTS-708.1.6 System Management: System management notification by the manufacturer and installation contractor shall be as follows:

A) The manufacturer shall provide specifications for the management of all components within the drip distribution system.

B) The manufacturer shall provide a management plan to ensure that maintenance is conducted as required to achieve and maintain proper system function.

C) The following information shall be provided by the installation contractor or manufacturer to the owner of the system:

1. An operation manual.
2. A management plan for the drip irrigation system.
3. The manufacturer of the components and a description of the function of the components.
4. The service contract information.
5. A trouble-shooting/repair guide.
6. A list of safety concerns.
7. Manufacturer's specification sheets for all electrical and mechanical components.

SECTION OWTS-709.0 DESIGN REQUIREMENTS FOR ILLINOIS RAISED FILTER BED SYSTEMS

OWTS-709.1 Illinois Raised Filter Bed System: Illinois raised filter bed systems shall be designed, installed, operated and maintained in accordance with the Illinois Private Sewage Disposal Code, with the exception that the requirements of this section shall apply.

OWTS-709.1.1 Pretreatment: Pretreatment shall be by process designed to reduce the $CBOD_5$ (carbonaceous 5-day biochemical oxygen demand) to a maximum concentration of 25 mg/L, and total suspended solids to a maximum concentration of 30 mg/L.

OWTS-709.1.2 Mantle Area Size Calculation: The square footage of the mantle area shall be equal to the projected daily flow in gallons per day divided by the assigned wastewater loading rate in gallons per day per square foot.

OWTS-709.1.3 Minimum Lateral Setback Distance: The minimum lateral setback distance shall be measured from the edge of the mantle area.

SECTION OWTS-710.0 DESIGN REQUIREMENTS FOR SYSTEMS WITH ATYPICAL WASTEWATER FLOW

OWTS-710.1 General: Onsite wastewater treatment systems that are intended to treat and dispose of atypical wastewater flow, as described in Section OWTS-507.1.1 shall be designed in accordance with the requirements of this Chapter that apply to the specific system type proposed, and in accordance with the requirements of Section OWTS-507.0. In enforcing any additional requirements on an onsite wastewater treatment system with atypical wastewater flow, as described in Section OWTS-507.1, and in accordance with the requirements of Section OWTS-507.1.1, the Health Officer apply the following guidelines regarding the system design:

OWTS-710.1.1 Pretreatment: Pretreatment of wastewater shall be sufficient to provide effluent suitable for the proposed disposal process. Any requirement for pretreatment

that is beyond the specifications of this ordinance shall be established based upon projections of wastewater strength, wastewater components, peak flows, soil conditions, or other factors recognized by standard practice as stressful to onsite wastewater treatment systems in order to achieve the performance objectives as described in Section OWTS-702.0.

OWTS-710.1.2 Effluent Application: Application of effluent to a soil treatment system shall be designed to preserve the infiltrative capacity of the soil. Consideration shall be given to application methods, such as dosing and alternating soil treatment components, and to the potential effect on the soil matrix, such as clogging and groundwater mounding in order to achieve the performance objectives as described in Section OWTS-702.0.

OWTS-710.1.3 Management Responsibility: Management and operational procedure and responsibility shall be closely established and provided for in a recordable covenant, or other legal agreement(s) as determined by the Health Officer to assure compliance with the performance objectives as described in Section OWTS-702.0.

SECTION OWTS-711.0 DESIGN REQUIREMENTS FOR NON-SOIL BASED SYSTEMS

OWTS-711.1 General: Non-soil based systems shall include holding tanks and surface discharging onsite wastewater treatment systems. These systems shall be approved only for uses specified in this Section and shall not be approved in lieu of a reserve soil treatment area.

OWTS-711.1.1 Management Responsibility: Management and operational procedure and responsibility shall be closely established and provided for in a recordable covenant, or other legal agreement(s) as determined by the Health Officer to assure compliance with the performance objectives as described in Section OWTS-702.0.

OWTS-711.2 Holding Tanks: Holding tanks shall be approved only for the use listed in Section OWTS-508.0, and when the conditions of this Section are met. Wastes removed from holding tanks shall be disposed of only at an approved wastewater treatment plant or a landfill permitted and designed to accommodate untreated domestic sewage.

OWTS-711.2.1 Site Plan and System Design: A site plan prepared in accordance with the requirements of Section OWTS-701.0 and Chapter 8, and that also demonstrates:

OWTS-711.2.1.1 Flotation Prevention: When installed below the base flood elevation, the tanks shall be sufficiently anchored to prevent floatation. Anti-buoyancy calculations shall be prepared, signed, and sealed by an Illinois licensed professional engineer.

OWTS-711.2.1.2 Capacity: Holding tanks shall be sized at a minimum of two (2) times the projected daily flow or a minimum of 1500 gallons, unless otherwise approved.

OWTS-711.2.1.3 Audio-Visual Alarm: Holding tanks shall be equipped with an audio-visual alarm to signal two-thirds of the total capacity.

OWTS-711.2.1.4 Holding Tank Agreement: The owner of the property served shall sign a Department Holding Tank Agreement.

OWTS-711.2.1.5 Pumping Contract: The owner of the property shall submit a pumping contract signed and dated by the owner of the property and a Lake County licensed onsite wastewater treatment system pumper indicating the agreement to pump the tanks when full to prevent an overflow.

OWTS-711.3 Surface Discharging Onsite Wastewater Treatment Systems: Surface discharging onsite wastewater treatment systems shall be approved only for the use listed in Section OWTS-508.3 and when the conditions of this Section are met.

OWTS-711.3.1 Site Plan and System Design: A site plan prepared in accordance with the requirements of Section OWTS-701.0 and Chapter 8, and that also demonstrates:

OWTS-711.3.1.1 Flotation Prevention: When installed below the base flood elevation, the tanks shall be sufficiently anchored to prevent floatation. Anti-buoyancy calculations shall be prepared, signed, and sealed by an Illinois licensed professional engineer.

OWTS-711.3.1.2 Dilution: A discharge point to a surface water or wetland provides a minimum 5:1 dilution of the effluent.

OWTS-711.3.1.3 Discharge Point: The proposed discharge point is a minimum of one quarter (1/4) mile from a public bathing beach.

OWTS-711.3.1.4 System Performance: The proposed system is designed to meet final discharge effluent standards in accordance with the requirements of NPDES Permit No. ILG62 as incorporated in Appendix A.

SECTION OWTS-712.0 DESIGN REQUIREMENTS FOR REPAIRS TO ONSITE WASTEWATER TREATMENT SYSTEMS

OWTS-712.1 General: The design of a repair to an onsite wastewater system, as defined in Section OWTS-202.0, shall meet the applicable requirements of this Section.

OWTS-712.2 Site Plan and System Design: A site plan prepared in accordance with the applicable requirements of this Section and Chapter 8 demonstrates:

OWTS-712.2.1 Location: The location of all proposed system components complies with the setback distances established by Appendix D.

OWTS-712.2.2 Capacity: The capacity of all proposed system components complies with the requirements established by Table C.2.

OWTS-712.2.3 Distribution Components: The size, materials and functionality of all proposed distribution components are equivalent to the components being replaced, and are compatible with the onsite wastewater treatment system.

OWTS-712.2.4 Basal Area Extension: When the basal area is extended, it shall be extended along the entire length of the downslope toe of a system using gravel or coarse sand, as applicable when reserve area is designated on an existing approved site plan. The width of the extension shall be determined in accordance with site conditions and best engineering practices.

OWTS-712.2.5 Toe Drain Addition: When a toe drain is installed, it shall be at the downslope toe of a Wisconsin at-grade, mound, or modified mound system, or an Illinois raised filter bed system seeping to the ground surface provided the seeping water does not meet the definition of domestic sewage, and all system inflow and infiltration has been corrected. The toe drain shall discharge to a seepage trench and shall meet the setback distances in Appendix D. The depth and width of the toe drain shall be determined in accordance with site conditions and best engineering practices.

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CHAPTER 8 – PLANS AND OTHER REQUIRED INFORMATION

SECTION OWTS-801.0 GENERAL

OWTS-801.1 Plans Required: Prior to granting approval to construct, replace, or repair an onsite wastewater treatment system or system component, the Health Officer shall review a site plan prepared in accordance with the requirements of this Chapter, and all other plans and information as required by this Chapter, to determine compliance with the requirements of this Ordinance.

OWTS-801.2 Public Sewer Location and Availability: All site plans submitted must indicate the location of, and distance to any public sewer or other Illinois Environmental Protection Agency regulated wastewater treatment and disposal system that is within a reasonable distance from the nearest property boundary line of the property to be served, as described in Section OWTS-301.6, or must indicate that these services are not located within a reasonable distance from the nearest property boundary line of the property to be served, as described in Section OWTS-301.6.

SECTION OWTS-802.0 SITE PLAN SPECIFICATIONS FOR A NEW, REPLACEMENT, OR ALTERATION-REPLACEMENT ONSITE WASTEWATER TREATMENT SYSTEM, OR AN ONSITE WASTEWATER TREATMENT SYSTEM WITH ATYPICAL WASTEWATER FLOW

OWTS-802.1 Minimum Standards: A site plan submitted for approval for a New Onsite Wastewater Treatment System, Replacement Onsite Wastewater Treatment System, Alteration-Replacement Onsite Wastewater Treatment System or an Onsite Wastewater Treatment System with Atypical Wastewater Flow shall meet minimum standards as established in Section OWTS-802.0.

OWTS-802.2 Other Required Information: A proposal to construct or replace an onsite wastewater treatment system, or to construct an onsite wastewater treatment system with atypical wastewater flow shall be submitted in accordance with the requirements of this Chapter on forms provided by the Department, and shall include the following information unless otherwise determined by the Health Officer:

OWTS-802.2.1 Soil Evaluation: A soil evaluation report, prepared in accordance with the requirements of Chapter 6.

OWTS-802.2.2 Projected Wastewater Flow Calculation: A calculation of the projected wastewater daily flow.

OWTS-802.2.3 Building Plans: A building plan depicting the proposed and/or existing floor plan.

OWTS-802.2.4 Component Capacity: A calculation of the capacity of the components of the onsite wastewater treatment system, including the soil treatment component.

OWTS-802.2.5 Length Calculation: A calculation of the bed length of a type 3, 4 or 5 system in accordance with Sections OWTS-705.1.7, OWTS-706.1.7 and OWTS-707.1.7.

OWTS-802.2.6 Low Pressure Pipe Distribution System Calculation: A calculation of low pressure pipe distribution system size and configuration in accordance with the requirements of Chapter 7.

OWTS-802.2.7 Other Information: Reports from engineers, wetland consultants, or other professionals, as required by the Health Officer to establish stormwater drainage, wetland delineations, surface water elevations, floodplain or other information necessary for the evaluation of the proposal.

OWTS-802.2.8 Plat of Survey: An accurate Plat of Survey of the property prepared by a licensed surveyor.

OWTS-802.3 Licensed Designer: The site plan shall be prepared by a person licensed as a Lake County licensed onsite wastewater treatment system designer, in accordance with the requirements of Chapter 11.

OWTS-802.4 Topographical Survey: The site plan shall be drawn on a topographical survey, as defined in Section OWTS-202.0, to provide accurate contour lines depicting each one foot change in elevation. If approved by the Health Officer, a topographical study may be submitted by a licensed onsite

wastewater treatment system designer in lieu of a topographical survey.

OWTS-802.5 Site Plan Size, Scale: The site plan shall be drawn on a minimum size sheet of 11 ½" by 17" and to a scale of 1" = 10', 1" = 20' or 1" = 30', unless otherwise approved by the Health Officer.

OWTS-802.6 Readable Copies: The site plan shall be prepared and copied so as to be easily readable.

OWTS-802.7 Number of Copies: Five (5) copies of the site plan shall be submitted.

OWTS-802.8 Site Information: The site plan shall properly locate and specify dimensions when applicable, for the following:

OWTS-802.8.1 Property Lines: All property lines and dimensions.

OWTS-802.8.2 Improvements: All existing and proposed buildings, driveways and other improvements.

OWTS-802.8.3 Utilities:

A) All utility easement locations and dimensions
B) All underground utility and service lines, and any overhead utility lines within 25' (twenty-five feet) of the proposed well location.

OWTS-802.8.4 Water Wells: All existing, proposed or sealed water wells, or closed loop wells on the property or within 75' (seventy-five feet) of a property line of the subject property.

A) The distance from all existing, proposed or sealed water wells, or closed loop wells to proposed components of a proposed onsite wastewater treatment system shall be dimensioned.

B) A 75 foot radius for any proposed water well shall be contained on the subject property, whenever possible.

OWTS-802.8.5 Onsite Wastewater Treatment Systems: All existing and proposed onsite wastewater treatment systems on the subject property or within 75' (seventy-five feet) of a property line of the subject property.

OWTS-802.8.6 Drainage: All drainage features including but not limited to ditches, streams, swales, storm sewers and other stormwater pathways.

OWTS-802.8.7 Surface Waters/Wetlands: All surface waters or wetlands on the subject property or within 50' (fifty feet) of a property line of the subject property.

OWTS-802.9 Onsite Wastewater Treatment System Specifications: The site plan shall properly locate and provide dimensions or specifications for the proposed onsite wastewater treatment system as follows:

OWTS-802.9.1 Onsite Wastewater Disposal System Components: Location and size of all onsite wastewater treatment system components and features, including:

A) Septic tanks, pretreatment units and lift stations and piping to these components;
B) Piping to the soil treatment component;
C) Distribution boxes, drop boxes, diverter valves;
D) Soil treatment components;
E) Distribution piping;
F) Gravel application beds in mound systems; and
G) Areas of approved filling.

OWTS-802.9.2 Soil Evaluation: Location of all soil evaluation points.

OWTS-802.9.3 Storage/Traffic: Location for material storage and a pathway for construction traffic.

OWTS-802.10 Specific Elevations: The site plan shall provide specific elevations, referenced to the topographical survey as follows:

OWTS-802.10.1 Benchmark: The elevation of a permanent benchmark.

OWTS-802.10.2 Floodplain: The Base Flood Elevation, if applicable.

OWTS-802.10.3 Sewer/Septic: The elevation of the invert(s) of the inlet(s) of the septic tank and other pretreatment units.

OWTS-802.10.4 Distribution Box: The elevation of the invert of the distribution box, except when a lift station is proposed.

OWTS-802.10.5 Distribution Line: The elevation of any low pressure lateral distribution line.

OWTS-802.11 Detailed Cross Section: A detailed cross section of the soil treatment component specifying original grade and the relative placement of fill material, gravel, piping and cover material.

OWTS-802.12 Required Additional Information: The site plan shall include additional information as follows:

OWTS-802.12.1 Legal Description: A legal description of the property.

OWTS-802.12.2 Property Location: A geographical sketch of the property location.

SECTION OWTS-803.0 SITE PLAN SPECIFICATIONS FOR A REPAIR TO AN ONSITE WASTEWATER TREATMENT SYSYEM, ALTERATIONS OR ADDITIONS TO PROPERTIES NOT REQUIRING REPLACEMENT OF SYSTEM COMPONENTS, OR SYSTEM COMPONENT ELIMINATION

OWTS-803.1 Minimum Standards: A site plan submitted for approval for a Repair to an Onsite Wastewater Treatment System, an Alteration or Addition to a Property not requiring replacement of system components, or system component elimination shall meet minimum standards as established in Section OWTS-803.0.

OWTS-803.2 Other Required Information: A proposal to repair an onsite wastewater treatment system, to alter or add to a property without the requirement to replace system component(s), or to eliminate a system component shall be submitted in accordance with the requirements of this Chapter on forms provided by the Department, and shall include the following information unless otherwise determined by the Health Officer:

OWTS-803.2.1 Building Plans: A building plan depicting the proposed and/or existing floor plan.

OWTS-803.2.2 Component Capacity: A calculation of the capacity of the component(s) of the onsite wastewater treatment system.

OWTS-803.2.3 Other Information: Reports from engineers, wetland consultants, or other professionals, as required by the Health Officer to establish stormwater drainage, wetland delineations, surface water elevations, floodplain or other information necessary for the evaluation of the proposal.

OWTS-803.2.4 Plat of Survey: An accurate Plat of Survey of the property prepared by a licensed surveyor.

OWTS-803.3 Licensed Designer or Licensed Installation Contractor: The site plan shall be prepared by a person licensed as a Lake County onsite wastewater treatment system designer or installation contractor in accordance with the requirements of Chapter 11, with the exception of site plans for Alterations or Additions to Properties not requiring the replacement of system components.

OWTS-803.4 Scale: The site plan shall be drawn on a minimum size sheet of 8½" by 11" and to a scale of 1" = 10', 1" = 20' or 1" = 30', unless otherwise approved by the Health Officer.

OWTS-803.5 Readable Copies: The site plan shall be prepared and copied so as to be easily readable.

OWTS-803.6 Number of Copies: Five (5) copies of the site plan shall be submitted.

OWTS-803.7 Site Plan Requirements: The site plan shall indicate the location of all buildings, structures, and proposed site alterations, as applicable, for the proposed project.

OWTS-803.7.1 Building Alterations and Additions: For building alterations and additions, two (2) copies of an existing and final floor plan must be submitted.

OWTS-803.7.2 Existing Onsite Wastewater Treatment System Components: The location of the existing components of the onsite wastewater treatment system.

OWTS-803.7.3 Proposed Onsite Wastewater Treatment System: When applicable, the location and size of any proposed system components.

OWTS-803.7.4 Water: The location of water wells and/or water supply lines.

OWTS-803.7.5 Setback Requirements: Other information as is applicable to establish the proposal is in accordance with the requirements of appendix D.

OWTS-803.7.6 Legal Description: A legal description of the property.

OWTS-803.7.7 Property Location: A geographical sketch of the property location.

SECTION OWTS-804.0 PROPOSED SUBDIVISIONS AND LOT SPLITS

OWTS-804.1 Minimum Standards: A plan for a new subdivision submitted for approval shall meet minimum requirements as established in Section OWTS-804.0.

OWTS-804.2 Other Required Information: A proposal to subdivide or split a property shall be submitted in accordance with the requirements of this Chapter on forms provided by the Department, and shall include the following information unless otherwise determined by the Health Officer:

OWTS-804.2.1 Other Information: Reports from engineers, wetland consultants, or other professionals, as required by the Health Officer to establish stormwater drainage, wetland delineations, surface water elevations, floodplain or other information necessary for the evaluation of the proposal.

OWTS-804.2.2 Plat of Survey: An accurate Plat of Survey of the property prepared by a licensed surveyor.

OWTS-804.3 Licensed Professional Engineer: The plan shall be prepared by an Illinois Licensed Professional Engineer.

OWTS-804.4 Topographical Survey: The plan shall be drawn on a topographical survey as defined in Section OWTS-202.0.

OWTS-804.5 Scale: The plan shall be drawn to a scale of 1" = 100' or less.

OWTS-804.6 Soil Evaluation Points: The plan shall locate all soil evaluation points.

OWTS-804.7 Site Features: The plan shall identify and detail site features as follows:

OWTS-804.7.1 Water Wells/Onsite Wastewater Treatment Systems: All existing water wells and/or onsite wastewater treatment systems.

OWTS-804.7.2 Waters and Drainage: All existing surface water resources, wetlands, agricultural and other subsurface drain tiles, flood plains and floodways. .

OWTS-804.7.3 Stormwater Systems: All proposed stormwater systems including runoff channels, storm sewers, detention or retention areas and drain tiles.

OWTS-804.7.4 Roadways: Proposed roadways and other areas where existing soils will be disturbed.

OWTS-804.7.5 Restricted Areas: All deed restricted, easement, and conservancy areas.

OWTS-804.8 Lot Specifications: The plan shall identify each proposed lot and shall demonstrate the capacity of each lot to meet the requirements of this Ordinance.

OWTS-804.9 Soil Maps and Soil Boring Logs: Soil maps and soil boring logs must accompany the plan submittal.

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CHAPTER 9 - CONSTRUCTION REQUIREMENTS

SECTION OWTS-901.0 GENERAL

OWTS-901.1 General: Every onsite wastewater treatment system, once approved, shall be constructed in a manner to preserve the condition of the soil treatment area, and to promote the long-term treatment and disposal of wastewater.

OWTS-901.2 Inspections: The Health Officer shall conduct inspections of onsite wastewater treatment systems under construction to ensure compliance with the requirements of this Ordinance.

SECTION OWTS-902.0 PERMIT & LICENSE REQUIREMENTS

OWTS-902.1 Construction Permit: No onsite wastewater treatment system, or component thereof, shall be constructed or installed until a construction permit has been issued by the Health Officer, with the exception that a construction permit shall not be required for a repair to an onsite wastewater treatment system.

OWTS-902.1.1 Site Evaluation: The Health Officer shall evaluate each site prior to the issuance of a construction permit to ensure that the soil treatment area has not been altered or disturbed, that the soil treatment area is protected by fencing or other site protective barrier, and that the information previously submitted and approved is substantially unchanged.

OWTS-902.1.2 Refusal to Issue Permit: The Health Officer shall refuse to issue a construction permit when conditions on the site are determined to be inconsistent with the approved site plan, the soil treatment area has been altered or disturbed, or when the soil treatment area is unprotected from construction traffic by an effective barrier. When the issuance of a construction permit is refused, the Health Officer shall require corrective action or the re-initiation of the original approval process as appropriate.

OWTS-902.2 Licensed Installation Contractor: No person shall conduct work on an onsite wastewater treatment system in Lake County unless such person holds a valid onsite wastewater treatment system installation contractor's license in accordance with the requirements of Chapter 11. The licensed installation contractor shall directly supervise all work conducted on an onsite wastewater treatment system, and shall be responsible to ensure that the work is in accordance with the approved site plan and complies with this Ordinance.

SECTION OWTS-903.0 SOIL TREATMENT AREA PREPARATION

OWTS-903.1 Minimum Requirements: Preparation of the soil treatment area shall be conducted only when the soil is dry. Site preparation shall be conducted under the supervision of the licensed installation contractor.

OWTS-903.2 Mowing: All sites shall be mowed to as close to the ground surface as is practical, and shall be cleared of brush. The mowed and cut material shall be removed without the use of machinery.

OWTS-903.3 Tree Removal: Removal of trees shall be accomplished by cutting as close to the ground surface as is practical. Stumps may be removed by grinding or cutting, but shall not be uprooted.

OWTS-903.4 Plow: Sites approved for onsite wastewater treatment system types 4 and 5, and where applicable, drip distribution and trench systems, shall be plowed prior to the placement of fill, gravel, or distribution piping as follows:

OWTS-903.4.1 Equipment: Equipment shall be a chisel plow or an implement designed for use with a skid-loader or backhoe that performs similarly to an agricultural chisel plow. The use of a frost tooth plow is prohibited.

OWTS-903.4.2 Contour: Plowing shall be performed parallel to the site contour.

OWTS-903.4.3 Depth: Plowing shall be performed to break the consistency of the sod to a depth of six (6) to eight (8) inches, unless an increased depth is needed to break the consistency and massive structure described in Section OWTS-604.1.

OWTS-903.4.4 Protection: Once plowed, the site shall not be graded or smoothed, and shall be protected from precipitation or construction activity.

OWTS-903.4.4.1 Precipitation: If precipitation falls upon a plowed area, the placement of fill or gravel shall not occur until the soil is dry. The Health Officer shall determine if it is necessary to re-plow the soil after it has dried.

SECTION OWTS-904.0 FILL PLACEMENT

OWTS-904.1 Minimum Requirements: The placement of fill material for onsite wastewater treatment system types 3, 4 and 5 shall be as established in Section OWTS-904.0.

OWTS-904.2 Fill Placement: Fill shall be placed in accordance with the approved site plan and shall be placed immediately after site preparation.

OWTS-904.3 Storage and Transportation: The storage and transportation of fill shall be as specified on the approved site plan; no traffic shall be allowed directly on the plowed area.

OWTS-904.4 Filling Procedure: Fill shall be placed only from the upslope or ends of the proposed soil treatment area as follows:

OWTS-904.4.1 Using Backhoe: Material may be placed with a backhoe reaching into the soil treatment area.

OWTS-904.4.2 Using Low Compression Equipment: Material may be pushed into the soil treatment area by low compression equipment maintaining a minimum of six inches (6") of material beneath the equipment. Rubber tire machinery shall not be used unless approved by the Health Officer.

SECTION OWTS-905.0 EXCAVATION

OWTS-905.1 Minimum Requirements: Excavation for system components shall be as established by Section OWTS-905.0.

OWTS-905.2 System Components: Excavations for septic tanks, pretreatment components, lift stations, sewer lines, header lines, pressure supply lines, and system components other than soil treatment components shall be as follows:

OWTS-905.2.1 Appropriate Elevations or Overcut: Excavations shall be made to the appropriate elevation or overcut only to accommodate bedding material.

OWTS-905.2.2 Grading: Excavations shall be level or uniformly graded as appropriate so that tanks, containers, and piping is supported and secure.

OWTS-905.2.3 Slope Excavations for piping shall be uniformly sloped so that wastewater does not pond in bowed areas.

OWTS-905.3 Soil Treatment Component Excavation: Excavation for soil treatment components shall be as follows:

OWTS-905.3.1 Site Contour: Excavation shall be uniform along the site contour, not exceeding the depth specified on the approved site plan.

OWTS-905.3.2 Bottom Surface: The trench or bed shall be excavated with a level bottom surface.

OWTS-905.3.3 Compaction and/or Smearing Protection: Excavation shall be done so as to preserve the infiltrative trench or bed bottom and sidewalls from compaction and/or smearing. Foot traffic on trench excavations shall be kept to a minimum.

SECTION OWTS-906.0 GRAVEL PLACEMENT

OWTS-906.1 Minimum Requirements: Gravel shall be placed in soil treatment trenches as follows:

OWTS-906.1.1 Gravel Depth: The depth of gravel specified below the distribution pipe shall be uniform, and of the minimum depth specified in Chapter 7.

OWTS-906.1.2 Placement: The gravel shall be placed carefully to avoid compaction of the infiltrative surface.

OWTS-906.1.3 Gravel/Piping: Gravel shall be placed around the distribution piping and covering the piping a minimum of two inches (2").

OWTS-906.1.4 Covering: The top of the gravel shall be covered with geotextile fabric prior to backfilling. Other approved barrier materials may be used except when geotextile fabric is specifically required in Chapter 7.

SECTION OWTS-907.0 PIPING INSTALLATION

OWTS-907.1 Minimum Requirements: All piping installed for onsite wastewater treatment systems shall be uniformly supported, sloped as appropriate, and otherwise installed as established in this section.

OWTS-907.2 Building Sewers: Building sewers shall be sloped not less than one-eighth inch (1/8") per foot, nor more than one-quarter inch (1/4") per foot.

OWTS-907.3 Connections: All piping shall be connected, solvent joined, or attached with an appropriate adapter as acceptable for the material to ensure that connections do not separate or allow the leakage of wastewater or infiltration of groundwater.

OWTS-907.4 Sealing Openings for Piping: An opening for piping entering or exiting septic tanks, pretreatment components, lift stations, distribution devices, or other system components shall be sealed and shall be water tight.

OWTS-907.5 Pressure Pipe Connections: Pipe connectors and fittings on pressure supply lines, manifolds, or lateral distribution pipes shall be pressure connectors or fittings.

OWTS-907.6 Connections to Distribution and Drop Boxes: Pipe directly connected to distribution and drop boxes shall be rigid, non-corrugated, non-perforated pipe extending into the soil treatment area as specified by Section OWTS-704.1.4.

SECTION OWTS-908.0 BACKFILLING

OWTS-908.1 Minimum Requirements: Backfilling operations shall be conducted as established by this Section. Backfill and topsoil cover material shall meet the specifications established by Section OWTS-1008.0.

OWTS-908.1.1 Weather Conditions: Backfill material shall not be frozen or contain wet soil clods.

OWTS-908.1.2 Timing: Backfilling and covering shall be completed as soon as practical after the construction or installation of the system component.

OWTS-908.1.3 Drainage: The grade established by backfilling and covering shall direct stormwater away from system components and the soil treatment area.

OWTS-908.1.4 Placement Around System Components: Backfill for excavations of tanks, distribution devices, piping, etc., shall be carefully placed to avoid displacing the system components. The backfill material shall be tamped or compacted to secure the system components and minimize settling.

OWTS-908.1.5 Placement in Soil Treatment Area: Backfill and/or cover for soil treatment components shall be carefully placed to avoid displacing the barrier material.

OWTS-908.1.6 Equipment Traffic: Backfill or cover shall be placed with a minimum of equipment traffic.

OWTS-908.1.7 Reserve Soil Treatment Areas and Prohibitive Disturbance Areas: No traffic shall be allowed on reserve soil treatment areas or prohibitive disturbance areas.

SECTION OWTS-909.0 ACCESSORIES

OWTS-909.1 Minimum Requirements: Devices and piping employed for the distribution of wastewater into soil treatment components or regulating the flow of wastewater shall be constructed, installed or equipped as established in this Section.

OWTS-909.1.1 Equal Flow Distribution Box: When an equal flow distribution box is used to direct wastewater flow to two or more wastewater conveyance pipes, the invert elevation of all outflow pipes shall be leveled with a pre-manufactured cap specifically designed to adjust the flow line of distribution box piping.

OWTS-909.1.2 Perforations: Perforations drilled into low pressure wastewater distribution pipe shall be carefully placed along a straight line, and drilled perpendicular to the apex of the pipe.

OWTS-909.1.3 Other Components: Diversion valves, flow control valves, effluent filters or any other component that is located outside of a septic tank or other enclosed buried system component shall be provided with access to final grade sufficient to allow applicable adjustment or maintenance as required.

OWTS-909.1.4 Audio-Visual Alarm: Pumps, aerobic treatment units, or other mechanical systems shall be provided with an audio-visual alarm. Electrical wiring and connections shall conform to the current National Electric Code.

SECTION OWTS-910.0 INSPECTIONS

OWTS-910.1 Minimum Requirements: Inspections of the construction and/or installation of an onsite wastewater treatment system, or component thereof, and the building served shall be conducted by the Health Officer to determine compliance with the requirements of this Ordinance.

OWTS-910.2 Inspection Request: A request for an inspection shall be made by the licensed installation contractor.

OWTS-910.3 Required System Construction Inspections: The following inspections are required by the Health Officer prior to issuing final approval:

OWTS-910.3.1 Soil Preparation: Inspection of the plowed surface of the soil treatment area prior to the placement of gravel.

OWTS-910.3.2 System Components: System components shall remain sufficiently uncovered so as to allow adequate inspection. Inspections of the following components of the onsite wastewater treatment system shall be conducted:

A) Building sewer material, tank manufacturers, tank capacities, risers, connecting piping;

B) Selected locations along a force main including the lift station outlet;

C) Presence and operation of pumps, switches, high water floats, control panels, timers, and audio-visual alarms;

D) Pressure test of distribution piping network;

E) Size of soil treatment component, quality of gravel, distribution components, gravel cover;

F) Final soil cover quality, depth, grading, seeding, mulching.

OWTS-910.4 Required Building Inspections: When applicable, inspections of the following areas of the building served shall be conducted to verify conformance with the approved site and building plan(s).

OWTS-910.4.1 Residential: A count of the number of bedrooms, as defined in Section OWTS-202.0, and an

inspection of discharge points of clear water discharges listed in Section OWTS-701.4.

OWTS-910.4.2 Non-Residential Floor plan arrangement and an inspection of discharge points of clear water discharges listed in OWTS-701.4.

OWTS-910.5 Other Inspections: The Health Officer may require or conduct any other inspections as may be determined to be necessary.

OWTS-910.6 Nonconforming Parts: When, during an inspection, the Health Officer identifies defective material or parts that do not conform to the requirements of this Ordinance, the defective material or nonconforming parts shall be removed, replaced with conforming material or parts, and if required by the Health Officer, re-inspected.

OWTS-910.7 Un-workmanlike Construction: When, during an inspection, the Health Officer identifies un-workmanlike construction that does not conform to the requirements of this Ordinance, the un-workmanlike construction shall be corrected, and if required by the Health Officer, re-inspected.

OWTS-910.8 Final Approval: No onsite wastewater treatment system shall be placed into service without the final written approval of the Health Officer.

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CHAPTER 10 - MATERIALS

SECTION OWTS-1001.0 GENERAL

OWTS-1001.1 Minimum Requirements: All materials used in the construction or installation of onsite wastewater treatment systems or system components shall be at least to the minimum specifications of this Ordinance.

OWTS-1001.2 Approval: All materials, equipment and devices approved for use shall be constructed and installed in accordance with such approval.

OWTS-1001.3 Technical Data: The Health Officer may require that sufficient technical data be submitted to substantiate the proposed use of any material or assembly, and if it is determined that the evidence submitted is satisfactory proof of performance for the use intended, the Health Officer shall approve its use subject to the requirements of this Ordinance. The costs of all tests, reports and investigations required under these provisions shall be paid by the applicant.

SECTION OWTS-1002.0 PRETREATMENT COMPONENTS

OWTS-1002.1 Septic Tanks: A septic tank used in an onsite wastewater treatment system shall meet the minimum standards for construction established in the Illinois Private Sewage Disposal Code and in this Ordinance.

OWTS-1002.2 Aerobic Treatment Units: An aerobic treatment unit used in an onsite wastewater treatment system shall be listed and labeled by an ANSI accredited third party testing and certification organization as a Class I unit.

OWTS-1002.3 Effluent Filters: An effluent filter used in an onsite wastewater treatment system shall be designed for the specific purpose of filtering septic tank effluent and shall be designed and installed to be easily maintained.

OWTS-1002.4 Exterior Grease Interceptor: When the Health Officer determines that the wastewater stream will contain significant quantities of fats, oil and grease (FOG) such as from a food processing establishment, food service establishment licensed by the LCHD or other kitchen operations more intensive than residential, an exterior grease interceptor (EGI) designed as described in this section shall be installed.

OWTS-1002.4.1 Wastewater Segregation: The wastewater shall be segregated so that only wastewater from kitchen/food operations shall be discharged to the exterior grease interceptor. The EGI shall receive the entire waste discharge from kitchens or food processing areas.

OWTS-1002.4.2 Capacity and Sizing: The minimum capacity shall be 1000 gallons or greater as calculated below:

OWTS-1002.4.2.1 Restaurant: The minimum capacity of an exterior grease interceptor serving a restaurant shall be equal to C when:

$$C = S \times H \times A$$

S = number of seats (in lieu of, or in addition to seats, each drive-in car service space shall count as 3 seats, and each drive-up service window shall count as 60 seats)

H = hours per day that meals are served (minimum of 6 hours; maximum 12 hours)

A = Appliance factor: 0.75 for a kitchen with no dishwashing and no food waste grinder; 1.0 for a kitchen with either a dishwashing machine or a food waste grinder; 1.25 for a kitchen with both a dishwashing machine and a food waste grinder.

OWTS-1002.4.2.2 Other Food Service: The minimum capacity of an exterior grease interceptor serving a dining hall, hospital, nursing home, school kitchen, church kitchen or a kitchen for carryout or delivery service shall be equal to C when:

$$C = (M \times G \times H)/ 2 \times P$$

M = meals served per day

G = 3 gallons per meal served

H = hours per day that meals are served at least 6 hours but not more than 12 hours

P = meal periods per day, 1, 2 or 3.

OWTS-1002.4.3 Tank Design Specifications: The exterior grease interceptor shall meet the construction standards of a septic tank as established in the Illinois Department of Public Health Private Sewage Disposal Code, Section 905.40, and shall be modified as follows:

OWTS-1002.4.3.1 Inlet/Outlet: The inlet and outlet openings shall be provided with open-end sanitary tee fittings or baffles, designed and constructed to distribute the flow and retain the grease in the tank or tank compartments. The sanitary tee fitting or baffle at the inlet opening shall extend below the liquid level of the tank a distance equal to 1/3 of the total liquid depth. The sanitary tee fitting or baffle at the outlet opening shall extend below the liquid level of the tank a distance equal to 2/3 of the total liquid depth.

OWTS-1002.4.3.2 Orientation: The longest dimension of the tank shall be set parallel to the direction of flow.

OWTS-1002.4.3.3 Openings: Only watertight openings shall be used for the inlet and outlet piping.

OWTS-1002.4.3.4 Setbacks: The setback distances in Appendix D shall apply to the placement of an exterior grease interceptor.

OWTS-1002.4.3.5 Effluent Flow: The effluent from an exterior grease interceptor shall be merged with the remaining flow from the facility at a point after primary treatment of that flow and before any additional treatment.

OWTS-1002.4.4 Inspections and Pumping: The owner of an exterior grease interceptor shall assure that the exterior grease interceptor is inspected and pumped as necessary to ensure its proper function.

OWTS-1002.5 Media Filters: If used, proprietary media filters shall be used in accordance with manufacturer's applications.

SECTION OWTS-1003.0 LIFT STATIONS

OWTS-1003.1 General: A lift station used as a component of an onsite wastewater disposal system shall be watertight and shall be designed to prevent floatation when emptied.

OWTS-1003.2 Risers: Every lift station shall be equipped with a riser extending a minimum of four inches (4") above grade, and shall be covered with a lid secured to prevent unauthorized entry. Final grade shall be sloped away from the riser(s).

OWTS-1003.3 Pumps and Controls: A pump used in an onsite wastewater disposal system shall be specified by its manufacturer as an effluent or sewage pump. Pumps shall be non-automatic, operated by an external switch or control.

OWTS-1003.3.1 Pump Switches: Pump switches shall be sealed float switches or equivalent. If the pumping volume cannot be accurately set by the tether of an on-off float switch, then a double float switch must be used.

OWTS-1003.3.2 Pump Controls: Pump controls, if used, shall be operated by float switches or equivalent means. Multiple pumps shall be operated by a control panel.

OWTS-1003.3.3 Electrical Boxes: Electrical boxes containing wire connections shall be water tight and located outside of the lift station. Electrical wiring entering a lift station shall enter through cast-in-place openings in the riser(s). Wiring shall not be placed in a groove chiseled or cut into the top of the riser(s).

OWTS-1003.3.4 Pump and Switch Placement: Lift station pumps shall be placed at least six inches (6") above the floor of the lift station. Float switches shall be secured to the vertical piping with corrosion resistant straps or ties. All pumps shall be provided with a threaded coupling or other disconnecting fitting, and should be provided with a corrosion resistant rope, strap or other device for removing the pump.

SECTION OWTS-1004.0 DISTRIBUTION DEVICES

OWTS-1004.1 General: Distribution boxes used in an onsite wastewater treatment system shall be constructed of concrete or plastic.

SECTION OWTS-1005.0 VALVES

OWTS-1005.1 General: A valve used in an onsite wastewater treatment system or system component shall be designed and installed as established in this Section.

OWTS-1005.1.1 Diversion Valves: Diversion valves shall be constructed of PVC and shall be designed with one inlet, divert the flow into two or more outlets, and shall be operated by a single valve control.

OWTS-1005.1.2 Ball or Gate Valves: Ball valves or gate valves in low pressure distribution pipe shall be constructed of PVC.

OWTS-1005.1.3 Check Valves: Check valves, when specified, shall be constructed of PVC.

SECTION OWTS-1006.0 PIPING

OWTS-1006.1 General: Piping used in an onsite wastewater treatment system shall be as specified in this Section, or equivalent for the intended use as specified in the Illinois Private Sewage Disposal Code, Section 905, Appendix A, Illustration C.

OWTS-1006.1.1 Building Sewers: Building sewers shall be Schedule 40 PVC or equivalent, and four inches (4") minimum diameter.

OWTS-1006.1.2 Gravity Effluent Lines: Gravity effluent lines shall be at minimum SDR 35 PVC, and four inches (4") minimum diameter.

OWTS-1006.1.3 Pressure Supply Lines With the exception of drip distribution systems, pressure supply lines shall be SDR 21 PVC, and:

OWTS-1006.1.3.1 Low Pressure Piping Systems: Two inch (2") minimum diameter on low pressure piping systems.

OWTS-1006.1.3.2 Drop Boxes and Distribution Boxes: One and one-half inch (1½") minimum diameter to distribution boxes.

OWTS-1006.1.4 Low Pressure Lateral Piping: Low pressure pipe lateral distribution piping shall be at minimum SDR 26 PVC, and one and one-half inch (1½") minimum diameter.

OWTS-1006.1.5 Gravity Lateral Piping: Gravity lateral distribution piping shall be corrugated polyethylene ASTM Standard F667-84 or equivalent, and four inch (4") minimum diameter.

OWTS-1006.1.6 Pipe Connectors: Couplings, connectors and fittings shall be appropriate for the size, material, and use.

OWTS-1006.1.6.1 Pressure Lines or Low Pressure Piping: Fittings or other connections in pressure lines or low pressure pipe systems shall be solvent joined schedule 40 PVC pressure fittings.

SECTION OWTS-1007.0 FILL AND GRAVEL AGGREGATE

OWTS-1007.1 Fill Material: Fill material used in an onsite wastewater treatment system shall be coarse sand as defined by the National Resources Conservation Service.

OWTS-1007.2 Gravel: Gravel used in an onsite wastewater treatment system shall be sized between three-quarter inch (¾") and one and one-half inches (1½"), and shall be washed to be essentially free of dust, sand or other material.

SECTION OWTS-1008.0 BACKFILL AND TOPSOIL COVER

OWTS-1008.1 Backfill Material: Soil material used in backfilling components of an onsite wastewater treatment system shall be free of rocks, clods, frozen clods, and extraneous materials.

OWTS-1008.2 Topsoil Cover Material: Topsoil used to cover any component of an onsite wastewater treatment system shall be considered good quality topsoil of the texture loam, sandy loam, silt loam or light silty clay loam, and shall be free of rocks, clods, frozen clods, and extraneous materials.

SECTION OWTS-1009.0 ITEMS NOT SPECIFIED

OWTS-1009.1 Other Materials: Any material used in an onsite wastewater treatment system that is not specified in this section shall be approved only after a review of the proposed usage by the Health Officer.

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CHAPTER 11 - LICENSING, CERTIFICATION AND TRAINING

SECTION OWTS-1101.0 GENERAL

OWTS-1101.1 Authority: The Health Officer shall regulate the evaluation of soils and the design, construction, repair, pumping and servicing/management of onsite wastewater treatment systems in Lake County by requiring any individual, or in the case of pumping, any company, who performs these services to possess a valid Lake County license.

OWTS-1101.1.1 Expiration Date: Licenses shall expire on December 31 of the year issued, except that a new license issued after October 1 and before December 31 shall expire on December 31 of the following year.

OWTS-1101.2 License Categories: When the requirements of this Chapter are met, the Health Officer shall issue the following categories of licenses:

A) Soil Classifier/Scientist
B) Onsite Wastewater Treatment System Designer
C) Onsite Wastewater Treatment System Installation Contractor
D) Onsite Wastewater Treatment System Designer/ Installation Contractor
E) Onsite Wastewater Treatment System Installation Contractor/Service Provider
F) Onsite Wastewater Treatment System Designer/ Installation Contractor/Service Provider
G) Onsite Wastewater Treatment System Pumper

OWTS-1101.3 Homeowner Activities: A person who owns and occupies a single family dwelling may construct an onsite wastewater treatment system or install a system component to serve the dwelling, or maintain, manage and/or service the onsite wastewater treatment system that serves the dwelling provided the following conditions are met:

OWTS-1101.3.1 System Construction/Installation: Prior to receiving a construction permit and beginning work on his or her onsite wastewater treatment system or system component, the owner must meet with the Health Officer and establish that he or she is knowledgeable of the proper construction materials and methods required by this Ordinance for the construction/installation of the onsite wastewater treatment system or system component. The Health Officer shall refuse to issue a construction permit until this meeting has taken place and the Health Officer is reasonably assured that the owner possesses sufficient capability to construct/install the onsite wastewater treatment system or system component.

OWTS-1101.3.2 System Management Activities: Prior to performing management activities on his or her onsite wastewater treatment system or system component, the

owner must establish to the Health Officer that he or she is knowledgeable of the proper system management methods required by this Ordinance and possesses the necessary instructional materials for managing his or her onsite wastewater treatment system or system component.

SECTION OWTS-1102.0 SOIL CLASSIFIER/SCIENTIST

OWTS-1102.1 Minimum Requirements: A person evaluating soils for an onsite wastewater treatment system shall be knowledgeable of the methods and principles of soil classification and experienced in determining the formation, morphology and description of soils and their applicable characteristics.

OWTS-1102.2 License: The Health Officer shall license Soil Classifiers/Scientists by the review and verification of valid certification by either the Illinois Soil Classifiers Association or the Soil Science Society of America.

SECTION OWTS-1103.0 ONSITE WASTEWATER TREATMENT SYSTEM DESIGNER

OWTS-1103.1 Minimum Requirements: A person designing an onsite wastewater treatment system shall be knowledgeable of the rules and regulations of the State of Illinois and the County of Lake, and of the general provisions of the materials incorporated in this Ordinance.

OWTS-1103.2 License, Examination: The Health Officer shall license an onsite wastewater treatment system designer by the administration of an examination. A passing score on the examination shall be 70% or above. After successfully passing the examination, the applicant shall pay for the license within the calendar year he or she passed the examination, but in all cases no later than January 1 of the following year. Illinois Professional Engineers shall not be required to complete the examination, but shall be required to apply and pay for an onsite wastewater treatment system designer license in order to submit a design for approval for an onsite wastewater treatment system in Lake County.

SECTION OWTS-1104.0 ONSITE WASTEWATER TREATMENT SYSTEM INSTALLATION CONTRACTOR

OWTS-1104.1 Minimum Requirements: A person constructing, installing, or repairing an onsite wastewater treatment system must be licensed by the Illinois Department of Public Health as a Private Sewage Disposal System Installation Contractor and shall be knowledgeable of the construction procedures specified herein, and of the interpretation of plans, drawings, and specifications relative to the construction or repair of an onsite wastewater treatment system.

OWTS-1104.2 License, Examination: The Health Officer shall license an onsite wastewater treatment system installation contractor by the administration of an examination. A passing score on the examination shall be 70% or above. After successfully passing the examination, the applicant shall pay for the license within the year of passing the examination but no later than January 1 of the following year.

SECTION OWTS-1105.0 ONSITE WASTEWATER TREATMENT SYSTEM SERVICE PROVIDER

OWTS-1105.1 Minimum Requirements: A person performing manufacturer specified management activities on pretreatment components, dispersal and disinfection components and/or system management required by this Ordinance or as a condition for site plan approval must be licensed by the Illinois Department of Public Health as a Private Sewage Disposal System Installation Contractor, shall be knowledgeable and experienced with the processes and operation of the components being serviced and shall perform management activities in accordance with the applicable manufacturer's specifications.

OWTS-1105.2 License: The Health Officer shall license onsite wastewater treatment system service providers by the review and verification of documentation that the individual has received training in manufacturer's service specifications and requirements.

SECTION OWTS-1106.0 ONSITE WASTEWATER TREATMENT SYSTEM PUMPER

OWTS-1106.1 Minimum Requirements: A person cleaning or pumping waste from an onsite wastewater treatment system or portable toilet, or hauling or disposing of these removed wastes must be licensed by the Illinois Department of Public Health as a Private Sewage Disposal System Pumping Contractor and shall be knowledgeable of the requirements of Chapter 12 of this Ordinance.

OWTS-1106.2 License: The Health Officer shall license onsite wastewater treatment system pumpers by issuing the license to the company providing the service.

SECTION OWTS-1107.0 LICENSE APPLICATION AND RENEWAL

OWTS-1107.1 License Application: The Health Officer shall provide forms for applications for licenses established in this Chapter. The Health Officer shall issue a license when the requirements of this Chapter are met and the applicable fee(s) have been paid.

OWTS-1107.2 License Renewal: The Health Officer shall provide renewal application notices to all currently licensed individuals and companies in December of the current year. The renewal application notices shall be sent to the last known address of record of the licensee. The Health Officer shall renew a license when the requirements of this Section are met.

OWTS-1107.2.1 Application and Fee Submittal: Licensed individuals shall submit a completed and signed application to the Health Officer, proof of continuing education credits during the previous year, and the applicable fee(s). Upon receipt of the application and fee, the Health Officer shall mail the license to the licensed individual within 30 days.

OWTS-1107.2.1.1 Continuing Education: Onsite wastewater treatment system installation contractors, designers, pumpers, and service

providers shall obtain at least 3 hours of continuing education credits per year in the field of onsite wastewater treatment and disposal from a training session approved by the Health Officer. Approved sessions include, but are not limited to, professional organization conferences, workshops, company training sessions, and online classes.

OWTS-1107.3 Expired License: An onsite wastewater installation contractor or designer license that has been expired for a period of less than 2 years may be reinstated in accordance with the requirements of Section OWTS-1107.2.1. A license that has been expired for more than 2 years may be restored only by meeting the requirements for a new license as established in this Chapter.

OWTS-1107.4 Multiple or Combined Licenses: An individual may hold multiple Lake County licenses, or where applicable, may hold combined licenses as specified in Section OWTS-1101.2.

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CHAPTER 12 - WASTE HAULERS AND SEPTAGE DISPOSAL

SECTION OWTS-1201.0 GENERAL

OWTS-1201.1 Minimum Requirements: Domestic septage may be disposed of only by methods established in this Section.

OWTS-1201.1.1 Sewage Treatment Facility: Septage may be disposed of at a sewage treatment plant appropriately licensed to operate by the Illinois Environmental Protection Agency.

OWTS-1201.1.2 Application to Agricultural Land: Septage may be applied to agricultural land as specifically established in this Chapter.

OWTS-1201.1.3 Other Approved Methods: Septage may be disposed of by other methods subject to the approval of that method by the Illinois Environmental Protection Agency and the Illinois Department of Public Health.

SECTION OWTS-1202.0 –LAND APPLICATION SITE APPROVAL

OWTS-1202.1 General: Septage shall not be land applied on any site without prior approval of the Health Officer.

OWTS-1202.1.1 Permit: Sites approved for land application of septage shall receive a permit from the Health Officer.

OWTS-1202.1.2 Permit Renewal: Permits issued for septage land application sites shall expire on December 31 of each year, and must be renewed annually.

OWTS-1202.1.3 Permit Suspension: The Health Officer may suspend, for good cause, the permit of any septage land application site. An appeal of such suspension and any penalty for continued use of a site after permit suspension shall be as established by this Ordinance.

OWTS-1202.2 Approval Conditions: A site submitted for approval as a septage land application site shall meet minimum standards as established by this Section.

OWTS-1202.2.1 Notification of Municipality: No site within the boundaries of a municipality may be approved for septage land application without the written approval of the municipality's corporate authority.

OWTS-1202.2.2 Limiting Layer: Septage shall not be applied on land having a limiting layer, as defined in Section OWTS-202.0, within 4 feet of the ground surface.

OWTS-1202.2.3 Floodplain: Sites proposed for septage land application shall be above base flood elevation.

OWTS-1202.2.4 Slope: The slope of sites proposed for septage land application shall not exceed five percent (5%).

OWTS-1202.2.5 Offset Requirements: An areas designated for septage land application shall be located at least the minimum setback distances from features as established by this Section.

OWTS-1202.2.5.1 Water Wells: Application areas shall be a minimum of 300 feet from any water well.

OWTS-1202.2.5.2 Public Roads: Application areas shall be a minimum of 100 feet from any public road.

OWTS-1202.2.5.3 Residential, Commercial or Industrial Areas: Application areas shall be a minimum of 1400 feet from any residential, commercial or industrial property.

OWTS-1202.2.5.4 Surface Waters: Application areas shall be a minimum of 200 feet from any surface water, wetland, drainage ditch, or surface inlet to subsurface drains.

SECTION OWTS-1203.0 SITE MANAGEMENT

OWTS-1203.1 Site Posted: A septage land application site shall be appropriately posted by the owner of the property when there is potential for public access.

OWTS-1203.2 Ponding: Septage shall not be applied where water is ponded in the application area.

OWTS-1203.3 Pooling: Septage shall be evenly spread over the application area to prevent pooling.

OWTS-1203.4 Rainfall: Septage shall not be applied to a site that has been saturated by rainfall during the 24 hour period preceding the intended application time.

OWTS-1203.5 Application Rates: The volume of septage applied per year shall not exceed the nitrogen requirements of the cover crop.

OWTS-1203.5.1 Cover Crop: A cover crop, such as winter wheat, hay, alfalfa or clover must be established on land application sites prior to the first application of septage, even when the crop is not intended for harvest.

OWTS-1203.6 Application Season: Septage shall only be applied from May through October.

OWTS-1203.7 Vegetation Restricted: The use of a septage application site for vegetation shall be restricted.

OWTS-1203.7.1 Vegetables and Fruits: The cultivation of root vegetables or other low growing fruits or vegetables on septage disposal sites is prohibited.

OWTS-1203.7.2 Pasture: Pasture utilized for septage application shall be restricted from harvest or animal grazing for a minimum of 30 days following septage application.

OWTS-1203.8 Spillage: Septage shall be transported and land applied in such a manner as to prevent spillage of wastes or the deposition of wastes or mud onto any public road or right of way.

OWTS-1203.9 Soil Incorporation: When conditions exist at a septage land application site that are determined by the Health Officer to be a nuisance, septage shall be appropriately incorporated into the soil after application.

OWTS-1203.10 Soil Injection and Tillage: If septage is injected or tilled into the soil throughout the growing season as a method of pathogen control, application must be done on a rotational basis within the site to maintain vegetative growth.

SECTION OWTS-1204.0 EQUIPMENT

OWTS-1204.1 General: A vehicle used for the collection and transportation of septage shall be properly equipped and maintained as established by this Section.

OWTS-1204.1.1 Container: Vehicle tanks shall be completely enclosed and leak free.

OWTS-1204.1.2 Pump: Septage pumps shall be vacuum or self priming and shall be leak free.

OWTS-1204.1.3 Hoses: Septage hoses shall be leak free, and stored in such a manner that contamination will not create a health risk or nuisance.

OWTS-1204.1.4 Discharge Nozzle: Septage tank discharge nozzles shall be located in such a manner that discharging waste does not flow or drip onto the vehicle, and shall be capped when not in use.

OWTS-1204.1.5 Equipment Condition: Equipment utilized in the pumping, storage, hauling and land application of septage shall be kept reasonably clean and in good working condition.

OWTS-1204.1.6 Vehicle Identification: The name and address of the septage hauling business shall be displayed in eight inch (8") letters on both sides of a septage hauling vehicle.

SECTION OWTS-1205.0 INSPECTIONS

OWTS-1205.1 Land Application Sites: The Health Officer shall inspect all sites utilized for the land application of septage for compliance with this Ordinance no less often than two times per year.

OWTS-1205.2 Vehicles and Equipment: The Health Officer shall inspect a vehicle utilized for the pumping and hauling of septage for compliance with this Ordinance no less often than once per year.

OWTS-1205.3 Enforcement: The Health Officer may issue notices and orders requiring action as may be necessary to assure compliance with this Section.

SECTION OWTS-1206.0 REPORTING

OWTS-1206.1 Reporting Requirements: On a quarterly basis, licensed pumpers land applying septage must report the following information:

A) Volume of septage land applied each month during the quarter.
B) Acreage treated each month during the quarter.
C) Site map showing area of application for each month during the quarter.
D) Signature.

SECTION OWTS-1207.0 OTHER REQUIREMENTS

OWTS-1207.1 State and Federal Regulations: The requirements established by this Chapter shall in no way preclude compliance with any applicable state or federal regulation.

OWTS-1207.2 Conflict: Whenever the provisions of this Chapter conflict with any applicable ordinance, regulation or rule, the most stringent requirement shall be applied.

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CHAPTER 13 – SYSTEM AND SYSTEM COMPONENT MANAGEMENT ACTIVITIES

SECTION OWTS-1301.0 GENERAL

OWTS-1301.1 General: The Health Officer shall require that the owner of record of an onsite wastewater treatment system or

system component specified in this Chapter assure that management activities are conducted and reported as required in this Chapter.

SECTION OWTS-1302.0 CERTIFIED PRE-TREATMENT COMPONENTS

OWTS-1302.1 Owner's Responsibilities: The owner of record of an onsite wastewater treatment system that contains a component certified by an ANSI accredited third party testing and certification organization to meet NSF/ANSI Standard Number 40 for pretreatment of wastewater, shall assure that management activities on the system component are conducted and reported as required in this Section.

OWTS-1302.1.1 Management Activities: Management activities on the certified pre-treatment component shall be conducted a minimum of two (2) times per calendar year, no less than four (4) months apart, and/or in accordance with the manufacturer's requirements. These activities shall include the repair, replacement, adjustment or modification of any part of the certified pre-treatment component and for additional inspections or management activities as are necessary to ensure its proper operation.

OWTS-1302.1.2 Management Activity Reporting: The owner of record shall be responsible to assure that a report of management activities is provided to the Health Officer within 30 days of the activities.

SECTION OWTS-1303.0 SURFACE DISCHARGING ONSITE WASTEWATER TREATMENT SYSTEMS

OWTS-1303.1 Owner's Responsibilities: The owner of record of a surface discharging onsite wastewater treatment system shall assure that management activities on the system are conducted and reported as required in this Section.

OWTS-1303.1.1 Management Activities: If a component certified by an ANSI accredited third party testing and certification organization to meet NSF/ANSI Standard Number 40 for pretreatment of wastewater is a part of a surface discharging onsite wastewater treatment system, management activities on the certified pre-treatment component shall be conducted a minimum of two (2) times per calendar year, no less than four (4) months apart, and/or in accordance with the manufacturer's requirements. These activities shall include the repair, replacement, adjustment or modification of any part of the certified pre-treatment component and for additional inspections or management activities as are necessary to ensure its proper operation.

OWTS-1303.1.1.1 Other Advanced Secondary Pre-treatment Component: If a surface discharging onsite wastewater treatment system contains an advanced secondary pre-treatment component, either solely or in conjunction with a pre-treatment component described in OWTS-1303.1.1, management activities on the pre-treatment component shall be conducted a minimum of two (2) times per calendar year, no less than four (4) months apart, and/or in accordance with the manufacturer's requirements. These activities shall include the repair, replacement, adjustment or modification of any part of the certified pre-treatment component and for additional inspections or management activities as are necessary to ensure its proper operation

OWTS-1303.1.2 Effluent Discharge Sampling and Analysis: A surface discharging onsite wastewater treatment system shall have its effluent discharge sampled a minimum of two (2) times per calendar year. Samples shall be analyzed in accordance with "Standard Methods for the Examination of Water and Wastewater" and the results shall comply with the performance and monitoring criteria in Table B.4.

OWTS-1303.1.3 Management Activity Reporting: The owner of record shall be responsible to assure that a report of management activities is provided to the Health Officer within 30 days of the activities

OWTS-1303.1.4 General National Pollutant Discharge Elimination System (NPDES) Permit: The owner of record of a surface discharging onsite wastewater treatment system shall assure that the system is in compliance with the National Pollutant Discharge Elimination System (NPDES) permit requirements of the Federal Clean Water Act, the Illinois Environmental Protection Agency and the U.S. Environmental Protection Agency.

SECTION OWTS-1304.0 HOLDING TANKS

OWTS-1304.1 Owner's Responsibilities: The owner of record of a holding tank onsite wastewater treatment system shall assure that the required maintenance and pumping of the holding tank(s) occurs and that all services are provided by appropriately licensed individuals or companies. The owner shall assure that a holding tank is pumped as often as is necessary to prevent overflow, and the repair, replacement, adjustment or modification of any component of the holding tank onsite wastewater treatment system to assure its proper operation.

OWTS-1304.1.1 Pumping Reporting: The owner of record shall be responsible to assure that reports of all pumping events are provided to the Health Officer upon request.

OWTS-1304.2 Inspections: The Health Officer shall inspect all holding tank systems at least two (2) times per year to determine compliance with this Chapter. The Health Officer may request reports of all pumping activities as part of the inspection(s).

SECTION OWTS-1305.0 REPORTING

OWTS-1305.1 Requirements: Management activities conducted on an onsite wastewater treatment system subject to the requirements of this Chapter shall be reported as outlined in this Section.

OWTS-1305.1.1 Management or Sampling Activity: The owner of record of an onsite wastewater treatment system subject to the management requirements specified in this Chapter, or by any other agreement conditional to its initial approval, shall submit to the Health Officer a report of all required management or sampling activity.

OWTS-1305.1.2 Reporting Requirements: Reports shall be submitted as specified in this Chapter, with the exception that a report of a discharge of inadequately treated effluent to the ground surface or a surface water shall be reported within twenty-four (24) hours.

OWTS-1305.1.3 Form Specifications: Any report submitted to the Health Officer as required by this Chapter shall be on forms or other means provided by, or acceptable to the Department including, as a minimum, the name of the owner of record, a complete mailing address, a complete legal description, the Permanent Index Number (PIN) and the individual sewage disposal system permit number.

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CHAPTER 14 – ENFORCEMENT

SECTION OWTS-1401.0 GENERAL

OWTS-1401.1 Violations: A person who violates any provision of this Ordinance, or who violates any determination or order of the Department under this Ordinance, shall be fined not more than $1000. Each day that a violation exists shall constitute a separate offense. The Lake County State's Attorney or the Attorney General shall bring such action in the name of the County of Lake or the People of Illinois, or may in addition to other remedies provided in this Ordinance, bring action for an injunction to restrain such violation.

SECTION OWTS-1402.0 NOTICE OF VIOLATION

OWTS-1402.1 Requirements: Whenever the Health Officer determines that there are reasonable grounds to believe that there has been a violation of any provision of this Ordinance, the Department shall give notice of such alleged violation to the person or company responsible, including but not limited to: the property owner, the property owner's tenant or renter. and/or licensed person or company licensed under the provisions of this Ordinance. The notice of violation shall:

A) Be in writing.
B) Include a statement of the reasons for the issuance of the notice.
C) Allow reasonable time as determined by the Health Officer for the performance of any act it requires.
D) Be served upon the owner, operator, or permit holder as the case may require; provided that such notice or order shall be deemed to have been properly served upon such owner, operator or permit holder when a copy thereof has been sent by regular, certified or registered mail to his last known address as furnished to the Lake County Health Department; or, when he has been served with such notice by any other method authorized by the laws of the State or Illinois; and
E) Contain an outline of corrective actions that are required to affect compliance with this Ordinance.

SECTION OWTS-1403.0 EMERGENCIES

OWTS-1403.1 General: When an emergency exists that requires immediate action to protect the public safety or health, the Health Officer may, without any administrative procedure and without notice of hearing, seek an injunction to require that such action be taken as the court may deem necessary to meet the emergency. Notwithstanding any other provision of this Ordinance, such order shall be effective immediately.

SECTION OWTS-1404.0 REVOCATION OF SITE PLAN APPROVAL

OWTS-1404.1 Site Conditions: When the condition of a site approved for an onsite wastewater treatment system has changed or any information considered in the approval of an onsite wastewater treatment system was omitted or found to be false or erroneous, the Health Officer may revoke the approval of that site and of any construction permit issued pursuant to the approval.

OWTS-1404.2 Revocation Notice: Revocation of approval shall be in writing, posted at the site and mailed to the owner, licensed designer, and licensed installation contractor, as applicable, by regular, certified or registered mail. The notice shall contain information as follows:

A) A statement that any further work on the onsite wastewater treatment system is prohibited.
B) An explanation of the reason for the revocation of approval.
C) An outline of action required to reinstate the approval, if determined.
D) An explanation of rights and procedures for an administrative hearing.

Unless the Health Officer receives a request for a hearing, the revocation of approval shall be considered final.

SECTION OWTS-1405.0 HEARINGS AND RIGHT TO APPEAL

OWTS-1405.1 Hearing Request: A person whose approval for an onsite wastewater treatment system is revoked may request a hearing, provided that the request is received in writing within ten (10) days from receipt of the notice of revocation.

OWTS-1405.2 Scheduled Hearing: The Health Officer shall conduct a hearing in accordance with Article VI of the Lake County Board of Health Ordinances.

SECTION OWTS-1406.0 SUSPENSION OF LICENSES

OWTS-1406.1 Hearing: When a person licensed under the provisions of this Ordinance violates a provision of this Ordinance, or provides information toward the evaluation of soil or site conditions or the installation of an onsite wastewater

treatment system that is false or erroneous, the Health Officer may require the appearance of that person at a hearing.

OWTS-1406.1.1 Written Notice: The Health Officer shall give written notice to the licensee by regular, certified or registered mail stating as follows:

A) The alleged violation or incident of providing false or erroneous information.
B) An intent to consider revocation of the license.
C) The time, date, and place of the hearing, which shall not be sooner than ten (10) days after the date of the notice.

OWTS-1406.1.2 Revocation/Restrictions: The Health Officer may, with cause, suspend or revoke the license of a person or company licensed under the provisions of this Ordinance.

OWTS-1406.1.3 Failure to Appear: The failure of a licensee to appear at a hearing for which due notice was given shall constitute a waiver of the right to a hearing.

OWTS-1406.1.4 Notification of Findings: The Health Officer shall notify a licensee within ten (10) days of a hearing of the findings.

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CHAPTER 15
FEES & ADMINISTRATIVE PROCEDURES/REQUIREMENTS

SECTION OWTS-1501.0 FEES

OWTS-1501.1 Fees: All fees assessed by the Health Officer in the enforcement and implementation of this Ordinance shall be in accordance with the current Lake County Board of Health Ordinance Article XIII.

SECTION OWTS-1502.0 APPLICATIONS

OWTS-1502.1 Applications: An application shall be submitted, on forms provided by, or acceptable to the Health Officer, to obtain approval from the Health Officer as required by this Ordinance.

SECTION OWTS-1503.0 PLANS AND PLAN REVIEWS

OWTS-1503.1 Plans: Plans shall be submitted in accordance with requirements of Chapter 8 to obtain approval from the Health Officer as required by this Ordinance.

OWTS-1503.2 Site Plan Review: Upon receipt of an application, properly submitted plans, and receipt of the appropriate fee, the Health Officer shall review the application and site plan for compliance with the provisions of this Ordinance, and shall approve, approve with comments, or deny approval of the proposal.

OWTS-1503.3 Notification of Non-Approval: The Health Officer shall notify an applicant whose application is not approved of the reason(s) preventing the approval and of any technical or administrative solution remaining.

OWTS-1503.4 Site Plan Validity and Expiration: A site plan that has been reviewed in accordance with the requirements of this Ordinance, unless revoked, shall be valid for a period of twenty-four (24) months from the date of approval, or the date of the notification of non-approval. After revocation or expiration a site plan shall be void and shall no longer be valid. Subdivision plans are exempt from the expiration requirement.

OWTS-1503.4.1 One-time Renewal of a Valid Approved Site Plan: Prior to the expiration date of an approved site plan, the approved site plan may be renewed one time for an additional twenty-four (24) month period that shall begin at the expiration date of the original site plan, upon submittal and approval of the following:

A) An application for renewal.
B) A fee in accordance with Article XIII of the Lake County Board of Health Ordinance.
C) Five copies of the **original** site plan that was initially approved. The type, size and location of the soil treatment component and surrounding grading shall be as approved on the original approved site plan.

OWTS-1503.4.2 Re-submittal of a Valid Unapproved Site Plan: Prior to expiration, a site plan that has been reviewed and was not approved may be re-submitted for review and potential approval upon submittal of a fee in accordance with Article XIII of the Lake County Board of Health Ordinance and five copies of the proposed revisions to the original site plan that was initially not approved.

SECTION OWTS-1504.0 VARIANCES

OWTS-1504.1 Variance Requests: When compliance with the requirements of this Ordinance is impossible or impractical, an applicant may request a variance as follows:

OWTS-1504.1.1 Written Requests: Variance requests shall be in writing and shall detail those conditions where compliance is considered impossible or impractical.

OWTS-1504.1.2 Supporting Data: Variance requests shall include pertinent data from an appropriately licensed or credentialed person to support the requested waiver of the requirements of this Ordinance and shall be consistent with the responsibility of the Health Officer to protect and provide for the health, safety, and general welfare of the people and the environment of Lake County and of other affected communities.

OWTS-1504.2 Review Process: The Health Officer shall review variance requests and shall approve or refuse to approve the request within ten (10) working days.

OWTS-1504.3 Notification: The Health Officer shall notify the person requesting a variance in writing of the approval or denial of the request, and shall state the reasons for the decision.

OWTS-1504.4 Recording Approval of Variance: The document issued by the Health Officer approving a variance shall be recorded with the property with the Lake County Recorder of Deeds and shall run with the land.

OWTS-1504.5 Fee: A fee in accordance with Article XIII of the Lake County Board of Health Ordinance shall be submitted with a variance request.

SECTION OWTS-1505.0 HEARINGS

OWTS-1505.1 Hearings: When approval as required in this Ordinance is denied by the Health Officer and a subsequent variance request is denied, that person denied approval may make a written request to the Health Officer for a hearing before the Board of Health Hearings Committee.

OWTS-1505.2 Request: A request for a hearing shall be made in accordance Article VI of the Lake County Board of Health Ordinances.

OWTS-1505.3 Hearing Rules: A hearing shall be conducted in accordance with Article VI of the Lake County Board of Health Ordinances.

OWTS-1505.4 Fee: A fee in accordance with Article XIII of the Lake County Board of Health Ordinances shall be submitted with a hearing request.

SECTION OWTS-1506.0 CONSTRUCTION PERMIT

OWTS-1506.1 General: A request for a construction permit to conduct work on an onsite wastewater treatment system for which a site plan has been approved shall be submitted as follows:

OWTS-1506.1.1 Application: An application, on forms provided by or acceptable to the Health Officer, shall be completed and submitted.

OWTS-1506.1.2 Fee: A fee in accordance with Article XIII of the Lake County Board of Health Ordinances shall be submitted.

OWTS-1506.1.3 Revised Site Plan: A revision to the approved site plan, if applicable, depicting any changes to the site plan or site may be submitted, with the exception that the type, size and location of the soil treatment component and associated surrounding grading may not be altered.

OWTS-1506.2 Permit Review: Upon receipt of an application for a construction permit and the appropriate fee, the Health Officer shall review the application and construction plan for compliance with this Ordinance and for conformance with the approved site plan.

OWTS-1506.3 Notification Process: The Health Officer shall issue or refuse to issue a construction permit within five (5) working days of its receipt, and shall notify any applicant whose permit is denied of the reason(s) preventing approval and of any technical or administrative solution(s) remaining.

OWTS-1506.4 Permit Period: A construction permit shall be valid for a period of one-hundred-twenty (120) days from the date of approval.

OWTS-1506.4.1 Extension: The Health Officer may, without additional fee, extend the construction permit for thirty (30) days provided that such extension shall apply only to the licensed onsite wastewater treatment system installation contractor to whom the permit was originally issued.

SECTION OWTS-1507.0 OTHER

OWTS-1507.1 Procedural/Fee Requirements: The Health Officer may impose procedural requirements and/or charge fees in accordance with Article XIII of the Lake County Board of Health Ordinances for other reviews, permits or services including but not limited to, the following:

OWTS-1507.1.1 Examination and License Fees: Examination and license fees for soil classifiers, onsite wastewater treatment system designers, installation contractors, service providers, and pumpers.

OWTS-1507.1.2 Onsite Wastewater Treatment System Evaluations: Evaluation of onsite wastewater treatment system upon request.

OWTS-1507.1.3 Septage Disposal: Inspection of septage disposal sites.

OWTS-1507.1.4 Mandatory Inspection and Management Program: Administrative fees associated with the mandatory onsite wastewater treatment system management program.

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CHAPTER 16 - RELIEF FROM PERSONAL RESPONSIBILITY

SECTION OWTS-1601.0 GENERAL

OWTS-1601.1 Personal Liability: The Health Officer charged with the enforcement of this Ordinance, while acting for the jurisdiction, shall not thereby be liable personally, and is hereby relieved from all personal liability for any damage that may accrue to persons or property as a result of any act required or permitted in the discharge of official duties. Any suit instituted against any officer or employee because of an act performed by the Health Officer in the lawful discharge of duties and under the provisions of this Ordinance shall be defended by the legal representative of the jurisdiction until the final termination of the proceeding, except as may be otherwise required by statute. The Health Officer shall not be liable for costs in any action, suit, or proceedings that may be instituted in pursuance of the provisions

of this Ordinance; any officer of the Lake County Health Department shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith, except as may be otherwise required by statute.

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CHAPTER 17 - INTERPRETATION AND CONFLICT

SECTION OWTS-1701.0 GENERAL

OWTS-1701.1 Minimum Requirements: The provisions of this Ordinance shall be held to be the minimum requirements for the promotion of public health, safety and general welfare. Whenever a provision of this Ordinance or any other applicable provisions of law, whether set forth in this Ordinance or any other applicable provisions of law imposes overlapping or contradictory regulations or contains restrictions covering similar subject matter, the provision that imposes higher standards or requirements for the promotion of public health and safety of the people of Lake County shall prevail.

SECTION OWTS-1702.0 STATE AND LOCAL REQUIREMENTS

OWTS-1702.1 Compliance: Compliance with this Ordinance does not release applicant from compliance with applicable State of Illinois or local ordinances or regulations governing onsite wastewater treatment systems.

SECTION OWTS-1703.0 EFFECTIVE DATE

OWTS-1703.1 This ordinance shall be effective on and after the 1st day of April, 1997, and shall be enforced as amended.

Adopted November 12, 1996.
Amended _____

APPENDIX A

The following materials are incorporated as a part of this Ordinance for reference purposes:

A. Illinois Private Sewage Disposal Licensing Act (225 ILCS 225/1 et seq.) and Illinois Private Sewage Disposal Code (Title 77 Illinois Administrative Code, Chapter I, Subchapter r, Part 905)

B. Wisconsin Mound Soil Absorption System Siting, Design, and Construction Manual, Small Scale Waste Management Project, University of Wisconsin-Madison, January, 1990.

C. Wisconsin Mound Soil Absorption System: Siting, Design and Construction Manual, Small Scale Waste Management Project, University of Wisconsin-Madison, January, 2000.

D. Wisconsin At Grade Soil Absorption System Siting, Design and Construction Manual, Small Scale Waste Management Project, University of Wisconsin-Madison, January, 1990.

E. At Grade Systems for On-Site Wastewater Treatment and Dispersal, Small Scale Waste Management Project, University of Wisconsin-Madison, January, 1999.

F. Design of Pressure Distribution Networks for Septic Tank-Soil Absorption Systems, Small Scale Waste Management Project, University of Wisconsin-Madison, January, 1981.

G. Design and Installation of Low-Pressure Pipe Waste Treatment Systems; UNC Sea Grant College Publication UNC-56-82-03, May 1982.

H. General Design, Construction, and Operation Guidelines: Constructed Wetlands Wastewater Treatment Systems for Small Users Including Individual Residences, Second Edition, Water Management Resources Group Tennessee Valley Authority, May 1993

I. Effluent Sewer Design Manual, Orenco Systems, Incorporated, March 2007.

APPENDIX B

Table B.1 – Soil Resource Groups

Soil Resource Group A - The following soils formed in loamy to sandy material overlying sandy or gravelly glacial outwash, have a moderately well or greater drainage class, and a particle size class of coarse-loamy, sandy skeletal or fine-loamy over sandy or sandy-skeletal. Udipsamments and Beach sand formed in wind-worked beach sand and have a somewhat poor or greater drainage class.
Soil Series
93 Rodman - Typic Hapludoll
318 Lorenzo - Typic Argiudoll
323 Casco - Inceptic Hapludalf
325 Dresden - Mollic Hapludalf
327 Fox - Typic Hapludalf
367 Beach sand
570 Martinsville - Typic Hapludalf
706 Boyer - Typic Hapludalf
839 Udipsamments - Typic Udipsamment and Aquic Udipsamment

Soil Resource Group B - The following soils formed in silty material overlying stratified glacial outwash, have a somewhat poor or greater drainage class, and a particle size class of fine-silty.
Soil Series
134 Camden - Typic Hapludalf
365 Aptakisic - Aeric Endoaqualf
442 Mundelein - Aquic Argiudoll
443 Barrington - Oxyaquic Argiudoll
526 Grundelein - Aquic Argiudoll
557 Millstream - Aquollic Hapludalf
696 Zurich - Oxyaquic Hapludalf
697 Wauconda - Udollic Endoaqualf
698 Grays - Mollic Oxyaquic Hapludalf
791 Rush - Typic Hapludalf
792 Bowes - Mollic Hapludalf

Soil Resource Group C - The following soils formed in silty clay loam glacial till, have a somewhat poor or greater drainage class, and a particle size class of fine.
Soil Series
23 Blount - Aeric Epiaqualf
146 Elliott - Aquic Argiudoll
223 Varna - Oxyaquic Argiudoll
298 Beecher - Udollic Epiaqualf
530 Ozaukee - Oxyaquic Hapludalf
531 Markham - Mollic Oxyaquic Hapludalf

Soil Resource Group D - The following soils formed in silty clay loam lacustrine sediments (Fine) and have a somewhat poor or greater drainage class.
Soil Series
189 Martinton - Aquic Argiudoll
192 Del Rey - Aeric Epiaqualf
370 Saylesville - Oxyaquic Hapludalf

Soil Resource Group E - The following soils formed in silty clay or clay glacial till (Fine) and have a somewhat poor or greater drainage class.
Soil Series
228 Nappanee - Aeric Epiaqualf
320 Frankfort - Udollic Epiaqualf

Soil Resource Group F - the following soils have a seasonal high water table at a depth of less than 12 inches from the ground surface.
Organic Soils
Soil Series
103, 1103, 3107, Houghton muck - Euic, Typic Haplosaprist
1210 Lena muck - Euic, Typic Haplosaprist
4777 Adrian muck - Sandy or sandy skeletal, Euic, Terric Haplosaprist
Mineral Soils
Soil Series
67 Harpster - Fine silty, Typic Calciaquoll
153 Pella - Fine silty, Typic Endoaquoll
219 Millbrook - Fine silty, Udollic Endoaqualf
232 Ashkum - Fine, Typic Endoaquoll
330, 1330 Peotone - Fine, Cumulic Vertic Endoaquoll
465 Montgomery - Fine, Vertic Endoaquoll
488 Hooppole - Fine loamy, Typic Endoaquoll
513 Granby - Sandy, Typic Endoaquoll
523 Dunham - Fine silty, Typic Endoaquoll
626 Kish - Fine loamy, Typic Endoaquoll
1107, 3107 Sawmill - Fine silty, Cumulic Endoaquoll
1082 Millington - Fine loamy, Cumulic Endoaquoll
1529 Selmass - Fine loamy, Typic Endoaquoll

Table B.2 – Maximum Wastewater Loading Rates: System Types 1, 2 & 3 use the most limiting soil condition in the upper 24"; System Types 4 & 5 use the most limiting soil condition in the upper 12".

	Till / Lacustrine	**Outwash**
Gravelly coarse sand	0.00	0.00
Moderate or strong platy structure	0.00	0.00
Sandy clay loam, silty clay loam, or finer, and weak platy structure	0.00	0.00
Moist soil consistence stronger than firm or any cemented class	0.00	0.00
Sandy clay, clay, or silty clay texture and weak or massive structure	0.00	0.00
Sandy clay loam, clay loam, silty clay loam, silt, loam or silt loam texture and massive structure	0.00	0.00
Sandy clay, clay, or silty clay texture of low clay content and moderate or strong structure	0.20	0.20
Sandy clay loam, clay loam, silty clay loam or silt loam texture with weak structure	0.20	0.30
Clay loam, silty clay loam, or silt loam texture and moderate or strong structure	0.40	0.50
Sandy loam or loam texture and weak structure	0.40	0.50
Sandy clay loam, sandy loam, or loam texture and moderate or strong structure	0.50	0.70
Fine sand, very fine sand, loamy fine sand, or loamy very fine sand	0.60	0.70
Loamy sand, sand, or coarse sand texture	0.80	0.80

Whenever a Class 1 aerobic unit is proposed, the wastewater loading rate may be increased by a factor of 20% as follows:

0.20 ---> 0.24
0.30 ---> 0.36
0.40 ---> 0.48
0.50 ---> 0.60
0.60 ---> 0.72
0.70 ---> 0.84
0.80 ---> 0.96

Table B.3 - Soil Treatment Credit: The relationship between the system type (wastewater application point) and the depth to a limiting layer shall be as follows:

Depth to Limiting Layer in inches	Septic Tank Effluent (greater than 10,000 FC organisms/100ml) Twenty-four inches (24") Separation Required	Secondary Treated Effluent(less than 10,000 FC organisms/100ml) Sixteen inches (16") Separation Required
Less than 6	NA	NA
6 to <10	Mound with increased sand (a)	Drip in fill (b), Mound (a)(c)
10 to <16	Mound (minimum 12" depth to limiting layer), Mound with increased sand (a)	Mound, Drip on grade/in fill (b), Modified Mound (a), Illinois Raised Filter Bed
16 to <24	Mound, Modified Mound (d)	All the above, Drip in ground/on grade, In-ground trenches (h), At-grade
24 to <28	All the above, At-grade	All the above, In-ground trenches (g)
28 to 36	All the above, In-ground trenches (f)(g)(h)	All the above, In-ground trenches (e)(g)
36 and above	All the above	All the above

Footnotes:

a. Maximum 4 gallon per day per square foot linear loading rate, single bed or separated un-stacked multiple beds, time dosing.
b. Acceptable fill is coarse sand (USDA texture 0.5mm to 1.0 mm). Proper depth of fill needed for separation distance and cover over the drip piping must be placed before installation of distribution system. A minimum of ten inches (10") of soil cover, four (4) of which must be coarse sand fill, must be placed over the drip piping for protective cover.
c. Drip distribution acceptable with sand footprint sized according to sand loading rate and mound basal area sized according to least permeable (lowest SLR) soil horizon in existing soil above the limiting layer.
d. Limiting layer must be at least eighteen inches (18").
e. Limiting layer must be at least twenty-eight inches (28") using a twelve inch (12") standard gravel trench, less if using a state approved, less than twelve inches (12") thick, low profile proprietary infiltration product.
f. Limiting layer must be at least thirty-six inches (36") using a twelve inch (12") gravel trench, less if using a state approved, less than twelve inches (12") thick, low profile proprietary infiltration product.
g. Protective topsoil cover needed when the top of the infiltration trench gravel or infiltration product is zero inches (0") to less than six inches (6") below original grade or top of sand fill. Depth of soil cover over a proprietary infiltration product shall be in accordance with the manufacturer's specifications.
h. When the sidewall of the infiltration trench will extend above existing grade, the soil treatment area shall be plowed and filled in accordance with Section OWTS-903.0 and OWTS-904.0 and the minimum depth of sand fill shall be ten inches (10"). The ten inch (10") depth sand fill material shall extend a minimum of ten feet (10') beyond all seepage trenches before sloping. A minimum of one-half of the depth of the infiltration trench shall be installed into existing grade. Distribution of wastewater shall be by low pressure piping designed in accordance with Section OWTS-703.6 and OWTS-704.1.12.

Table B.4 - Discharge Effluent Limitations for Treated Domestic Sewage Discharges to any Waters of the State, Lakes, Ponds or Impoundments

Discharge Monitoring Parameter	**Discharge Effluent Limitations**			**Monitoring Requirements***
	Yearly Average	Daily Maximum	Sample Type	Sampling Frequency
Biochemical Oxygen Demand	10mg/l	12mg/l	Grab	Biannually Approximately every 6 months
Suspended Solids	12mg/l	24mg/l	Grab	
Fecal Coliform	200 CFUs/100ml	400 CFU's/100ml	Grab	
Total Residual Chlorine (TRC)**	Suggested Operating Range: 0.2 to 1.5 mg/l		Grab	
Oil, Odor, color, Floating Debris	None Detectable in Discharge or Caused by Discharge in the Receiving Water		Onsite Observation	

* Follow-up sampling is required within 30 to 60 days when any parameter fails to meet its effluent limitation. Sampling must continue bi-monthly after that until the relevant effluent limitation is met or until follow-up inspections to adjust the chlorine delivery system to meet the benchmark range.

** TRC values indicate a non-regulatory benchmark range. Failure to meet benchmark range values does not indicate a violation, but rather a need by the owner of record to conduct Discharging Wastewater Treatment Systems from the United States Environmental Protection Agency as incorporated in Appendix A.

APPENDIX C

Table C.1 – Design Daily Wastewater Flow

Wastewater Source	Unit	Gallons Per Day Per Unit
Apartment buildings, Multi-family residence	Bedroom	150
Assembly halls (no food preparation)	Person	2
Bars and cocktail lounges with restaurant (in addition to restaurant seating space)	Seating space	9
Bars and cocktail lounges, Type 1 food facility	Seating space	9
Beauty salons	Station	140
Bowling centers with or without bar and Type 1 food facility	Lane	125
Bowling centers with bar and food preparation, Type 2 or 3 food facility	Lane	225
Campground sanitary dump stations	Camp space	20
Campground with central bath and toilet facilities	Space	35
Camp, day use only, no food preparation	Person	10
Camp, day use only, food preparation (cafeteria/kitchen)	Person	25
Camps, day and night toilet and shower facilities and food preparation (cafeteria/kitchen)	Person	50
Churches - no kitchen	Person	3
Churches - with kitchen	Person	6
Dance hall (10 ft^2 per person)	Person	2
Day care facility (no meal preparation)	Child	12
Day care facility (with meal preparation)	Child	16
Dining hall (toilet and kitchen waste without dishwasher)	Meal served	5
Dining hall (toilet and kitchen waste with dishwasher)	Meal served	7
Drive-in restaurants - all paper service	Car space	15
Drive-in restaurants - all paper service, with inside seating	Car space and seating space	15
Drive-in theater (toilet and kitchen/cafeteria)	Vehicle space	3
Employees (day workers)	Employee per shift	15
Gas station and convenience store (Type 1 food facility)	Patron	3
Health club, indoor sports facility	Person	5
Health club, indoor sports facility – with showers	Person	15
Hotels or motels and tourist rooming houses	Room	100
Laundromat	Customer	100
Long term care facility	Bed	125
Medical office buildings, clinics and dental offices Doctors, nurses, medical staff Office personnel Patients	 Person Person Person	 75 15 10
Mobile home park community	Site	300
Mobile home (individual)	Bedroom	150
Outdoor sports facilities (toilet waste only)	Person	5
Parks with toilet facilities (75 persons per acre)	Person	5
Restaurant, 24 hour (with dishwasher and/or food waste grinder)	Seating space	44
Restaurant, 24 hour (without dishwasher and/or food waste grinder)	Seating space	40
Restaurant (with dishwasher and/or food waste grinder)	Seating space	22
Restaurant (without dishwasher and/or food waste grinder)	Seating space	20
Retail stores (70% of total store area ÷ 30 ft^2 per customer)	Customer	2
Schools	Classroom / Student	450 / 18
Schools with meals served	Classroom / Student	600 / 24

Wastewater Source	**Unit**	**Gallons Per Day Per Unit**
Schools with meals served and showers provided	Classroom / Student	750 / 30
Swimming pool bathhouses	Person	10

Residential Sizing Criteria

# of Bedrooms	Total Gallons per Day
2	300
3	450
4	600
5	700

Minimum 300 total gallons/day
100 gallons/day for each additional bedroom above 4

Table C.2 – Septic Tank and Aerobic Treatment Unit Sizing Standards

Residential

Number of Bedrooms	Septic Tank(s) (Gallons)	Aerobic Units (Gallons Per Day)
2 or Fewer	1250	400
3	1500	500
4	2000	600
5	2200	750
6	2600	900
7	3000	1050

Other than Residential

Projected Wastewater Concentrations	Septic Tank(s) (Gallons)	Aerobic Units (Gallons Per Day)
$\leq$ 300 ppm BOD_5	1.5 x design flow	1.0 x design flow
$\geq$ 300 ppm BOD_5	Section OWTS-710.0 - Atypical Flow	

Table C.3 – Lift Station Sizing Standards

Number of Bedrooms	Minimum Liquid Capacity (Gallons)
2 or fewer	750
3 - 4	1000
5 or more	1500

Appendix D
Minimum Setback Distances of Components of OWTS to Site Features

Distance (in feet) From:	Component Part of System			
	Building Sewer or Force Main	**Septic Tank, Holding Tank, Aerobic Treatment Unit, Media Filter, Lift Station**	**Primary and Reserve Soil treatment Area (basal area, mantle, edge of in-ground trench/bed, drip tubing, constructed wetland)**	**Class V Injection Well[5]**
Wells[1] or Suction Lines	50[2]	50	75	200
Water Supply Line Under Pressure, In-ground swimming (water edge)	10	10	25	25
Surface Waters, Retention Facility (ordinary high water mark)	25	25	25	25
Wetlands	10	25	25	25
Detention Facility High Water Line	10	10	25	25
Building with foundation footing drain tile	NA	10	20[3]	10
Building without foundation footing drain tile	NA	5	10	10
Property Line, Fence Posts, Structure Support Posts, Patios, Sidewalks	3	3	5	5
Driveways	NA	5	10[4]	10[4]
Agricultural, perforated drain tile	10	10	10	10
Drainage Easement, Open Ditches, Road Cuts	5	5	5	10
Utility Easements	5	5	5	5
Sealed Well	5	10	25	25
Upslope or Sideslope of Soil Treatment Area for System Types III, IV and V, Soil Treatment Area for All Other System Types	NA	5	NA	NA
Downslope of Soil Treatment Area for System Types III, IV and V	NA	10	NA	NA

Footnotes:

1- For separation distances to closed loop wells see 77 Ill. Adm. Code 920.180

2- A building sewer may be located to within 10 feet of a well or suction line from the pump to the well when cast iron pipe with mechanical joints or Schedule 40 PVC pipe with watertight joints is used for the building sewer. A force main may be located to within 10 feet of a well or suction line from the pump to the well when Schedule 40 PVC pipe with watertight joints is used.

3- The distance to the upslope edge of the basal area of a Type 3, 4 and 5 system can be reduced by 50% on sites where the soil treatment area is on a slope of 2% or greater.

4- This distance can be reduced by 50% if the soil treatment area is the edge of a trench/bed (System type 1 or 2), drip tubing, or upslope or sideslope side of a soil treatment area.

5- Class V Injection Wells are defined in the Illinois Pollution Control Board rules. They are typically a shallow well used to place fluids below the land surface. See 35Ill. Adm. Code 704.105, 704.106 and 704.280.

APPENDIX E

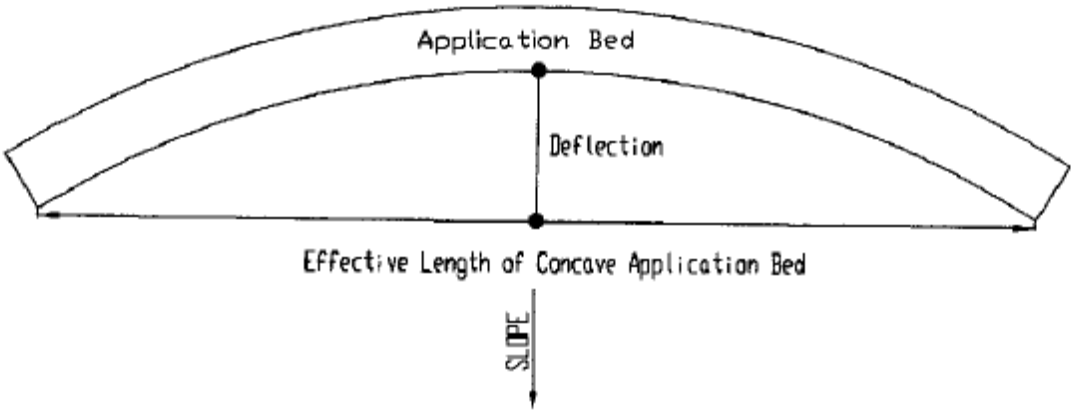
Table E.1 - Perforation Discharge Rates (in Gallons per Minute Versus Perforation Diameter and In-Line Pressure)

In-Line Pressure (ft)	Perforation Diameter (in)					
	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"
	---------- gpm ----------					
1.0'	0.42	0.74	1.15	1.66	2.26	2.95
1.5'	0.50	0.90	1.41	2.03	2.76	3.61
2.0'	0.59	1.04	1.63	2.34	3.19	4.17
2.5'	0.66	1.17	1.82	2.62	3.57	4.66
3.0'	0.72	1.28	1.99	2.87	3.91	5.10
3.5'	0.77	1.38	2.15	3.10	4.22	5.51
4.0'	0.83	1.47	2.30	3.31	4.51	5.89
4.5'	0.89	1.56	2.44	3.52	4.79	6.25
5.0'	0.94	1.65	2.57	3.71	5.04	6.59

Table E.2 – Friction Loss in Schedule 40 Plastic Pipe

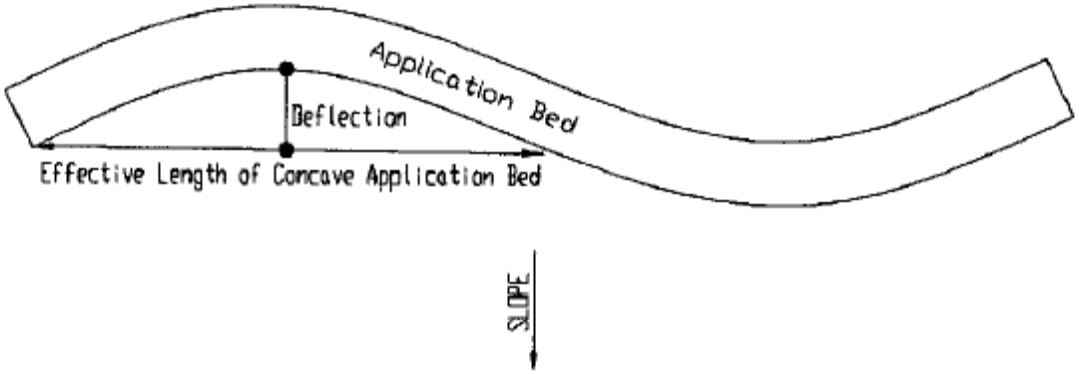
Flow (gpm)	Pipe diameter (inches)				
	1 ¼	1 ½	2	3	4
10	1.46	0.70	0.21		
11	1.77	0.84	0.25		
12	2.09	1.01	0.30		
13	2.42	1.17	0.35		
14	2.74	1.33	0.39		
15	3.06	1.45	0.44	0.07	
16	3.49	1.65	0.50	0.08	
17	3.93	1.86	0.56	0.09	
18	4.37	2.07	0.62	0.10	
19	4.81	2.28	0.68	0.11	
20	5.23	2.46	0.74	0.12	
25		3.75	1.10	0.16	
30		5.22	1.54	0.23	
35			2.05	0.30	0.07
40			2.62	0.39	0.09
45			3.27	0.48	0.12
50			3.98	0.58	0.16
60	**Velocities in this area become too great for the various flow rates and pipe diameters**			0.81	0.21
70				1.08	0.28
80				1.38	0.37
90				1.73	0.46
100				2.09	0.55
125					0.85
150					1.17
175					1.56

Illustration E.3: Deflection (of a Concave Soil Treatment Component)



Percent Of Deflection= (Deflection/Bed Length) x 100

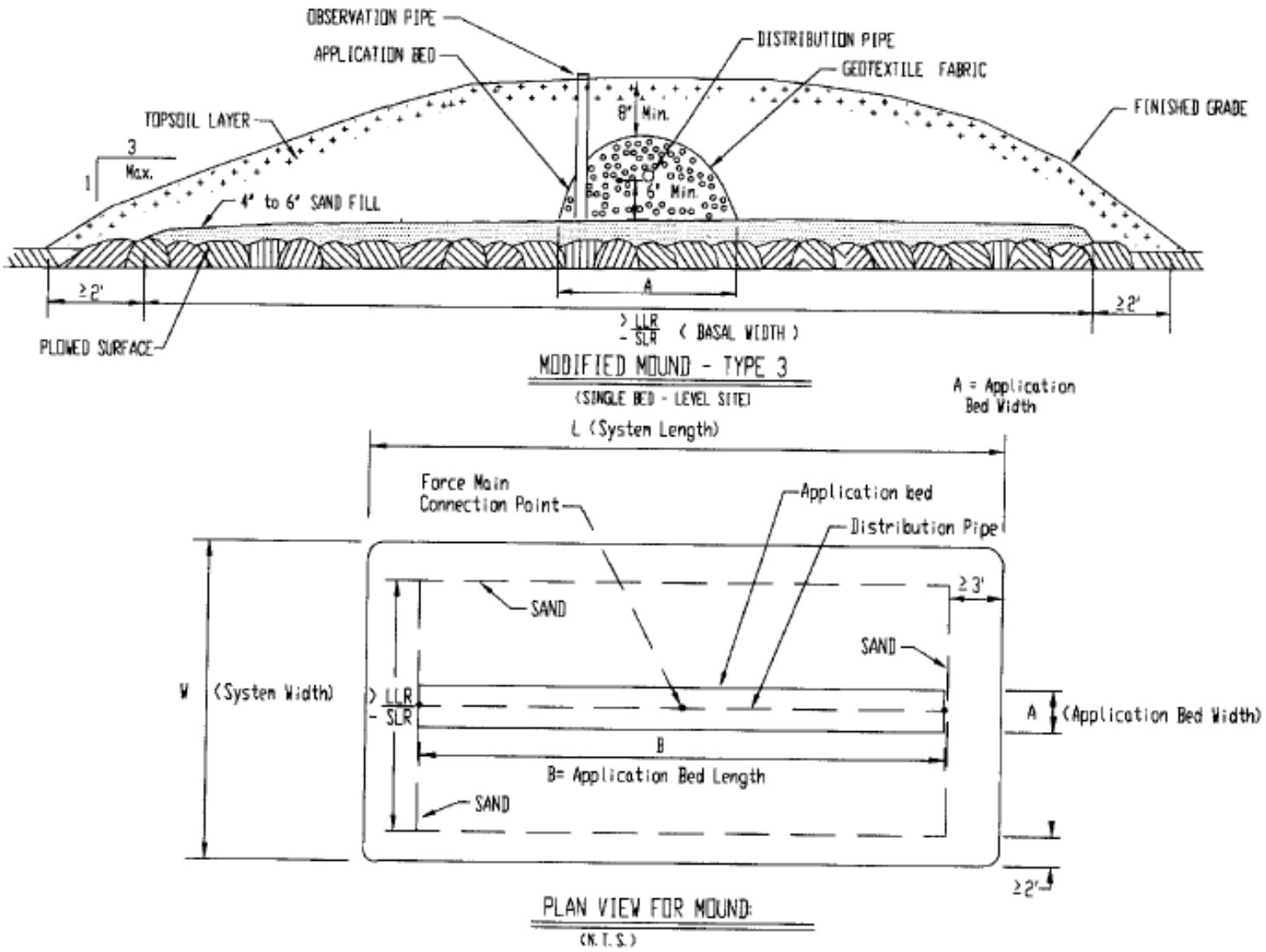
(N.T.S.)



Percent Of Deflection=(Deflection/Length of Concave Bed) x 100

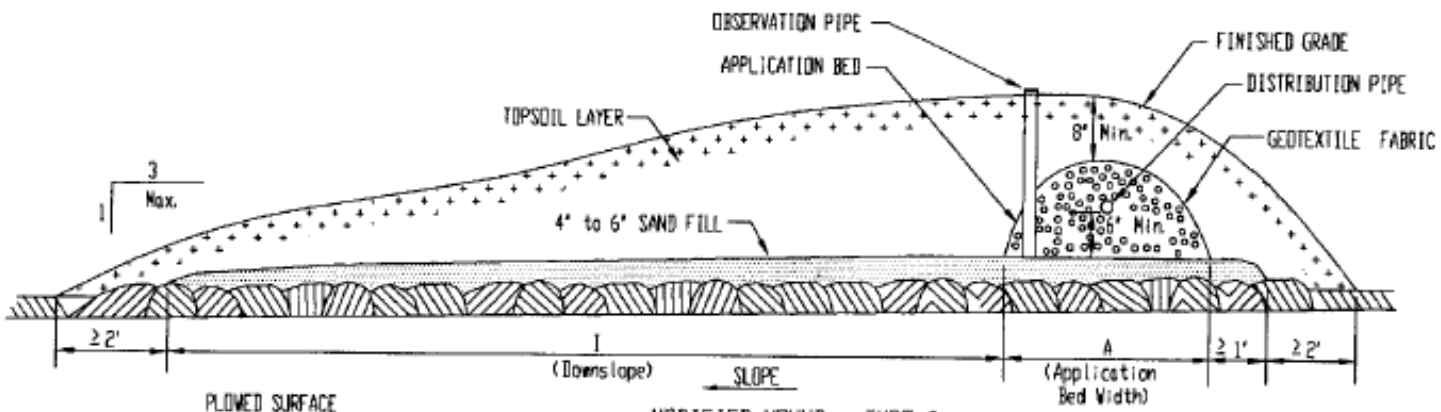
(N.T.S.)

Illustration E.4: Type 3 – Modified Mound System: Single Bed, Level Site



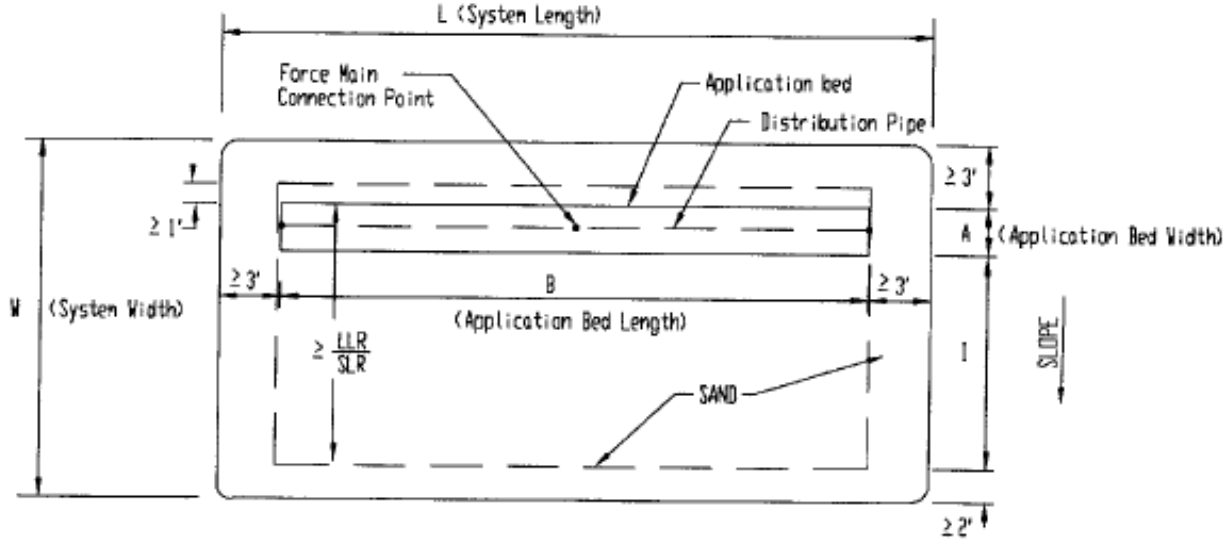
* Observation pipes may be installed in the application bed.

Illustration E.5: Type 3 – Modified Mound System: Single Bed, Sloping Site



MODIFIED MOUND - TYPE 3

(SINGLE BED - SLOPING SITE)

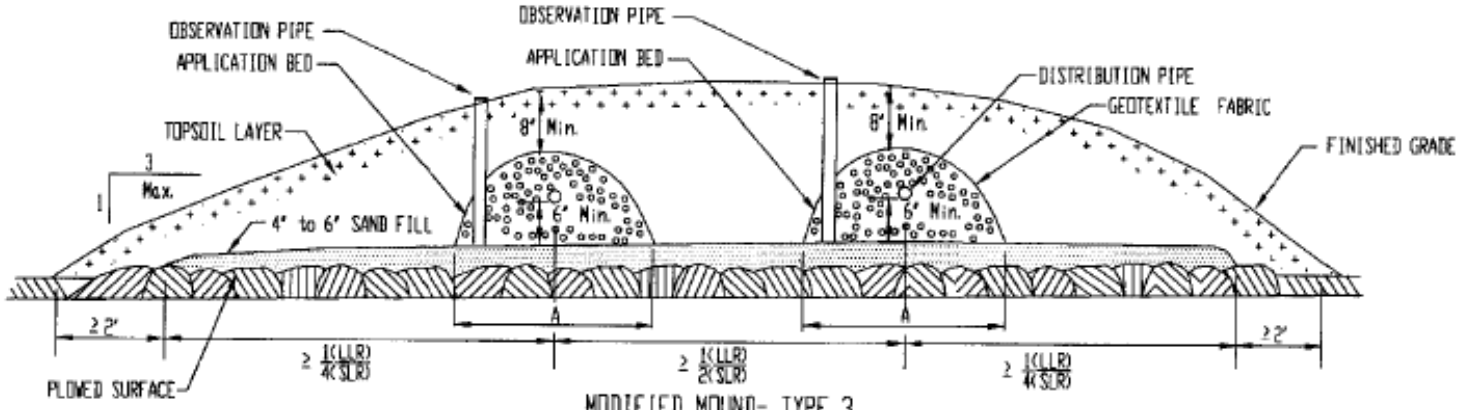


PLAN VIEW FOR MOUND:

(N.T.S.)

* Force main must connect to the distribution pipe from the upslope or the endslope. The force main cannot be located in the downslope area on landslopes of 2% or greater.
* Observation pipes may be installed in the application bed.

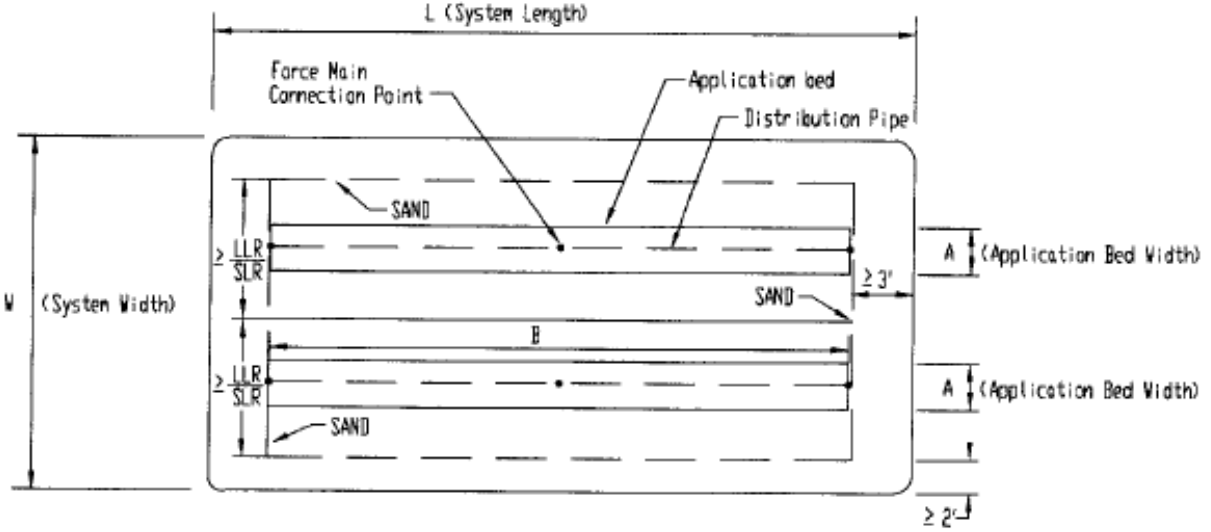
Illustration E.6: Type 3 – Modified Mound System: Multiple Bed, Level Site



MODIFIED MOUND- TYPE 3

(MULTIPLE BED - LEVEL SITE)

A = Application Bed Width



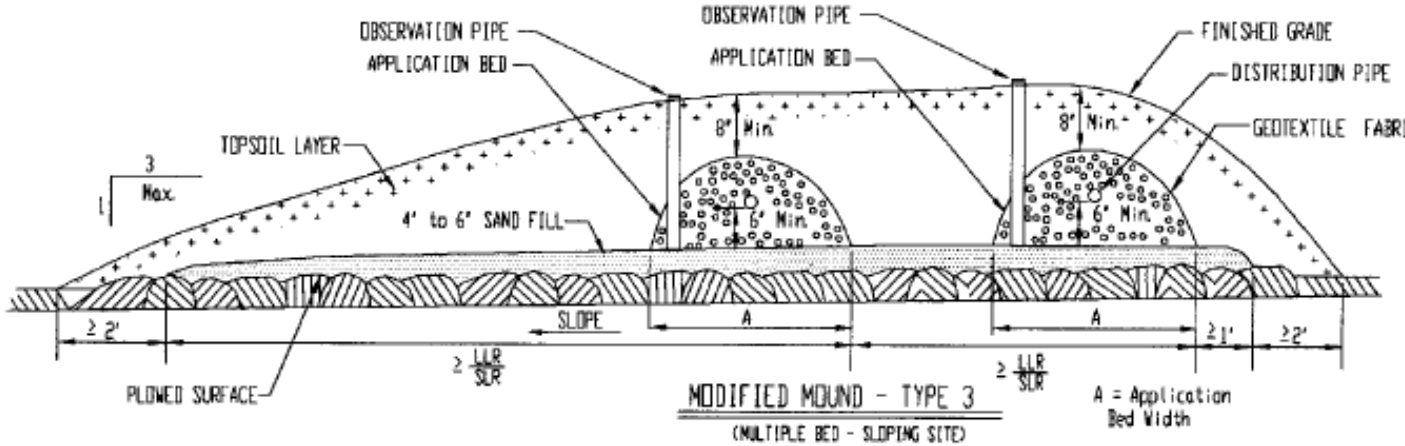
PLAN VIEW FOR MOUND:

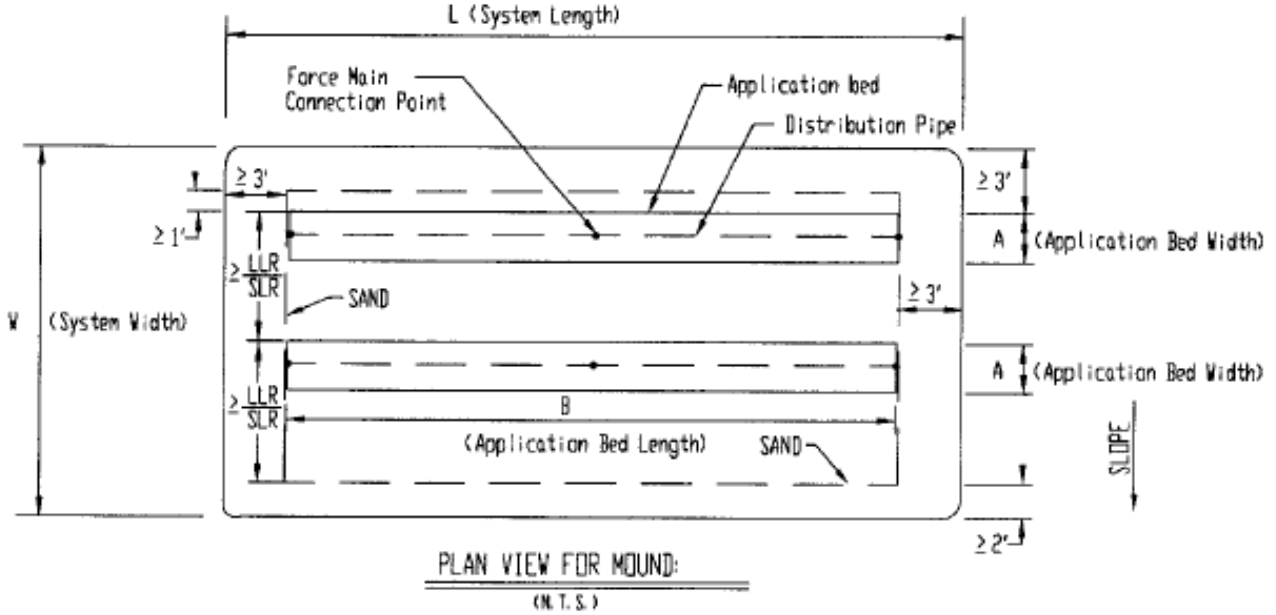
(N.T.S.)

B= Application Bed Length

* Observation pipes may be installed in the application bed.

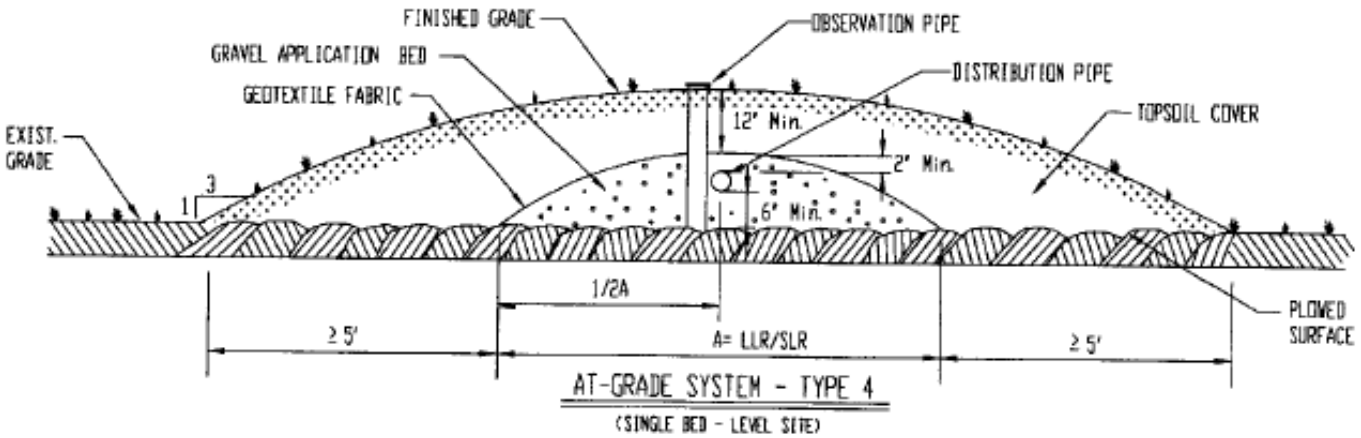
Illustration E.7: Type 3 – Modified Mound System: Multiple Bed, Sloping Site





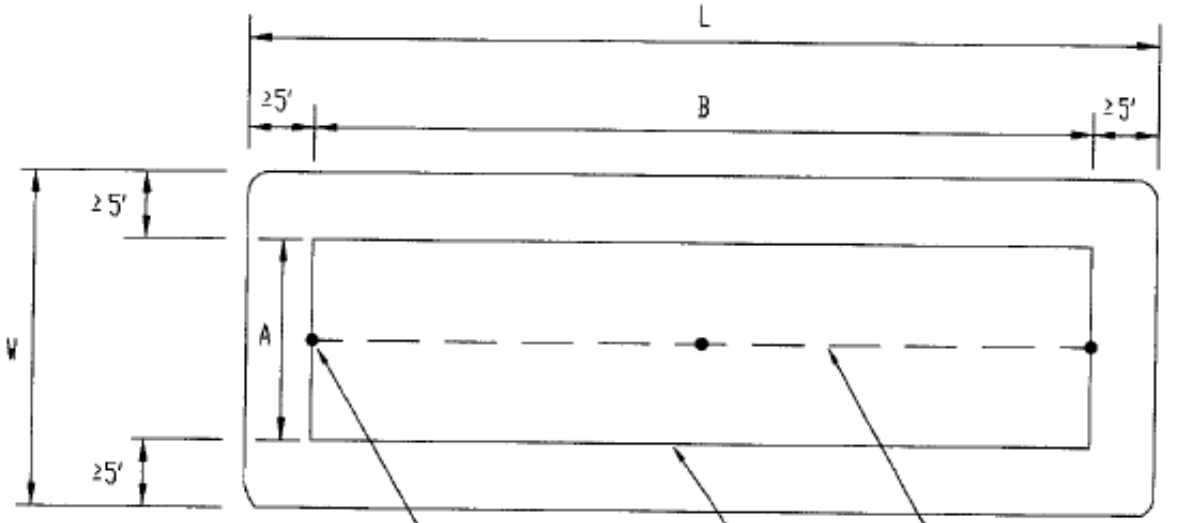
* Force main must connect to the distribution pipe from the upslope or the endslope. The force main cannot be located in the downslope area on landslopes of 2% or greater.
* Observation pipes may be installed in the application bed.

Illustration E.8: Type 4 – At-Grade System: Single Bed, Level Site



AT-GRADE SYSTEM - TYPE 4

(SINGLE BED - LEVEL SITE)

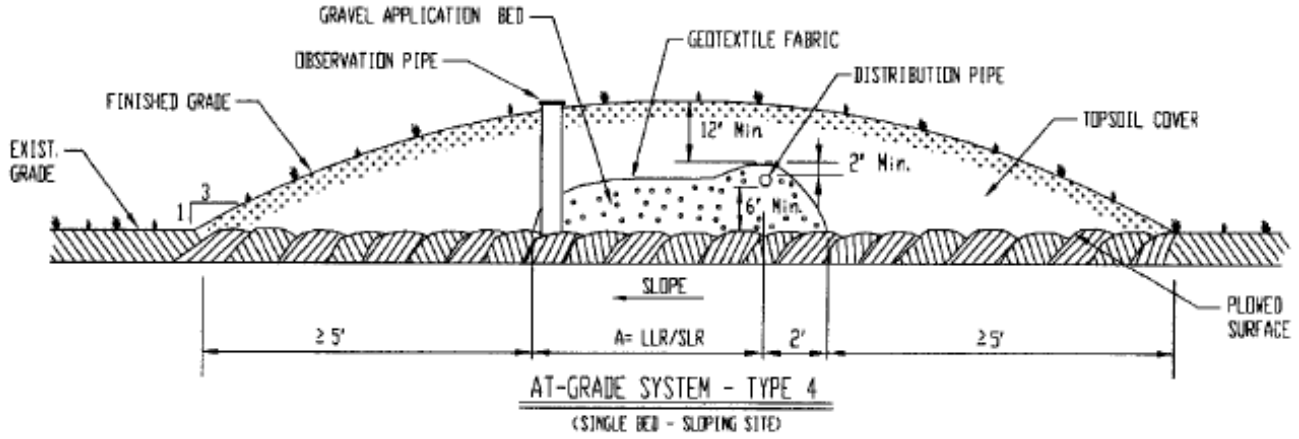


PLAN VIEW-AT-GRADE SYSTEM

(SINGLE BED - LEVEL SITE)

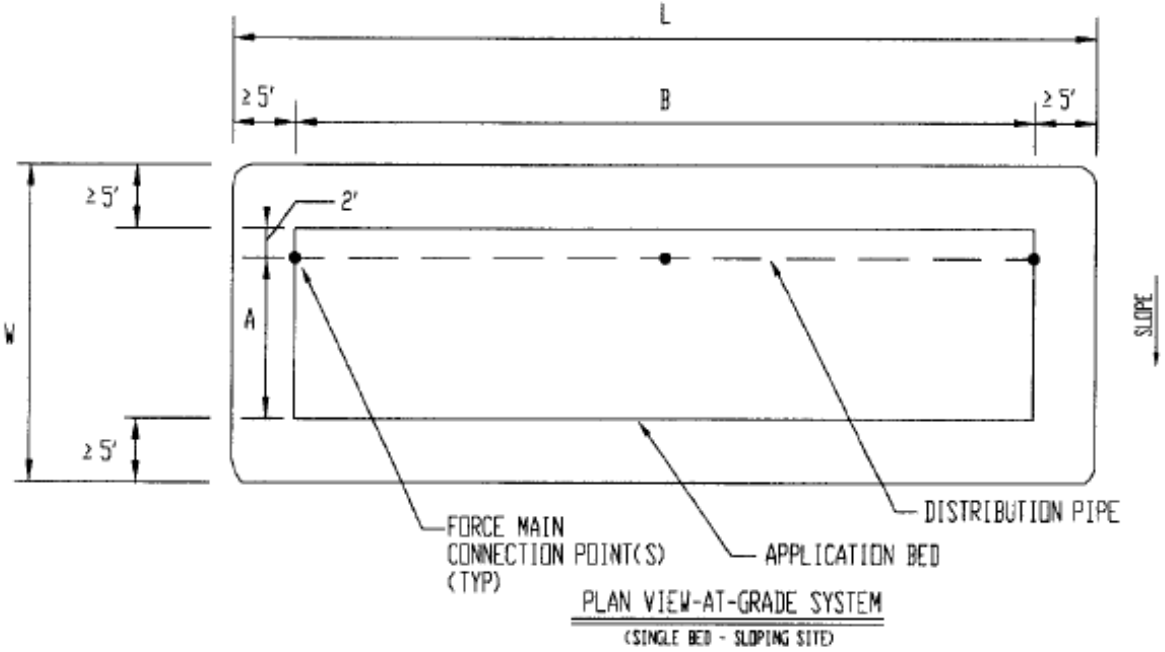
* Observation pipes may be installed in the application bed.

Illustration E.9: Type 4 – At-Grade System: Single Bed, Sloping Site



AT-GRADE SYSTEM - TYPE 4

(SINGLE BED - SLOPING SITE)

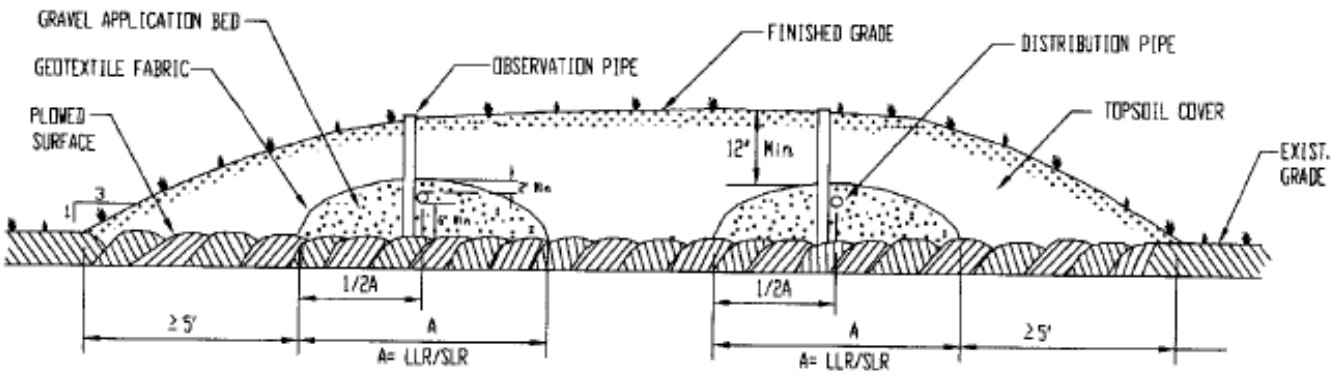


PLAN VIEW-AT-GRADE SYSTEM

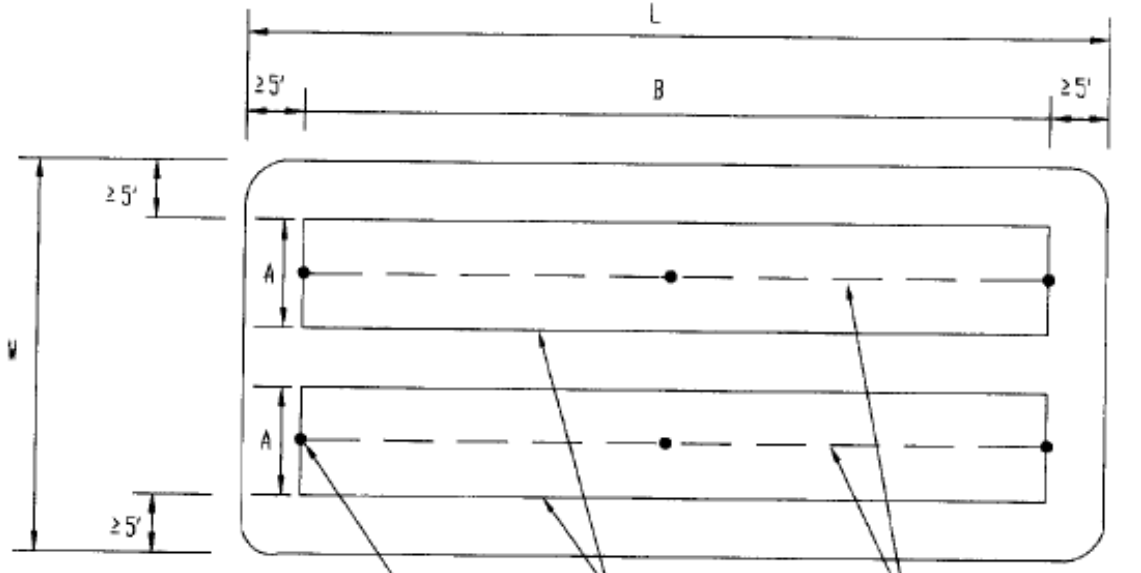
(SINGLE BED - SLOPING SITE)

* Force main must connect to the distribution pipe from the upslope or the endslope. The force main cannot be located in the downslope area on landslopes of 2% or greater.
* Observation pipes may be installed in the application bed.

Illustration E.10: Type 4 – At-Grade System: Multiple Bed, Level Site



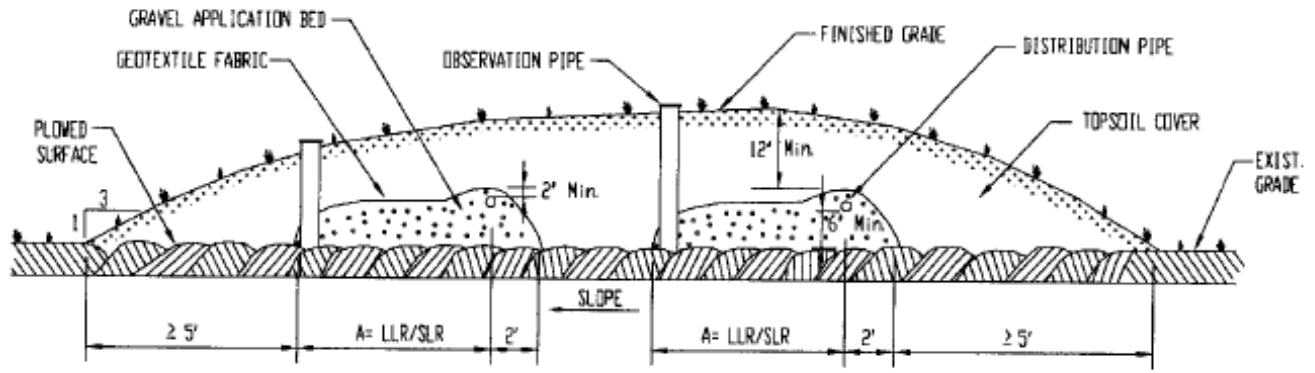
AT-GRADE SYSTEM - TYPE 4
(MULTIPLE BED - LEVEL SITE)



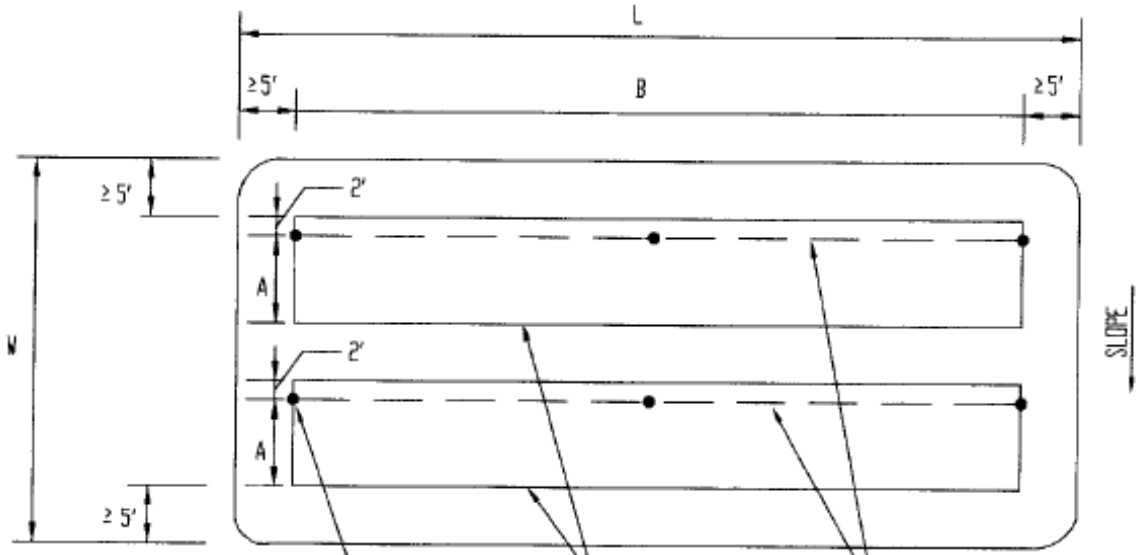
PLAN VIEW-AT-GRADE SYSTEM
(MULTIPLE BED - LEVEL SITE)

* Observation pipes may be installed in the application bed.

Illustration E.11: Type 4 – At-Grade System: Multiple Bed, Sloping Site



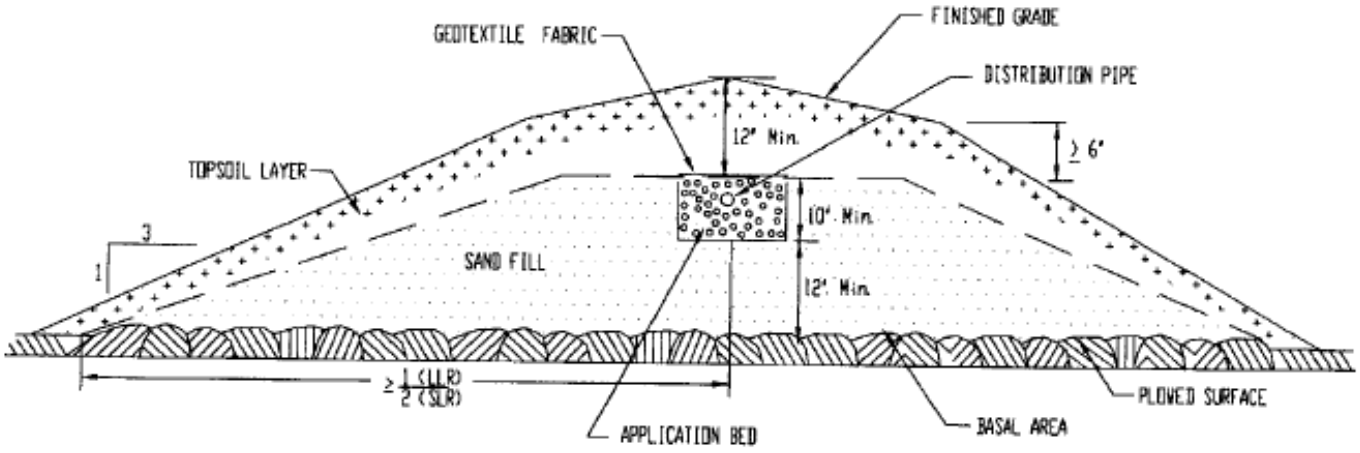
AT-GRADE SYSTEM - TYPE 4
(MULTIPLE BEDS - SLOPING SITE)



PLAN VIEW-AT-GRADE SYSTEM
(MULTIPLE BEDS - SLOPING SITE)

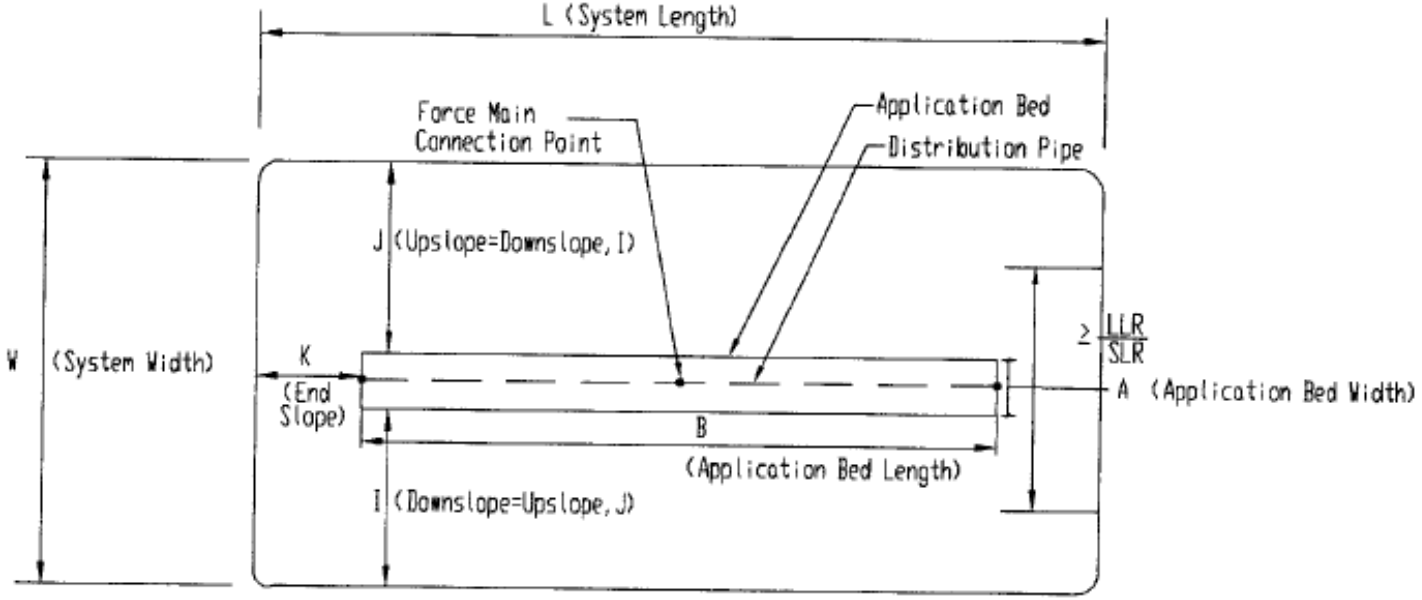
* Force main must connect to the distribution pipe from the upslope or the endslope. The force main cannot be located in the downslope area on landslopes of 2% or greater.
* Observation pipes may be installed in the application bed.

Illustration E.12: Type 5 – Mound System: Single Bed, Level Site



MOUND SYSTEM - TYPE 5

(SINGLE BED - LEVEL SITE)

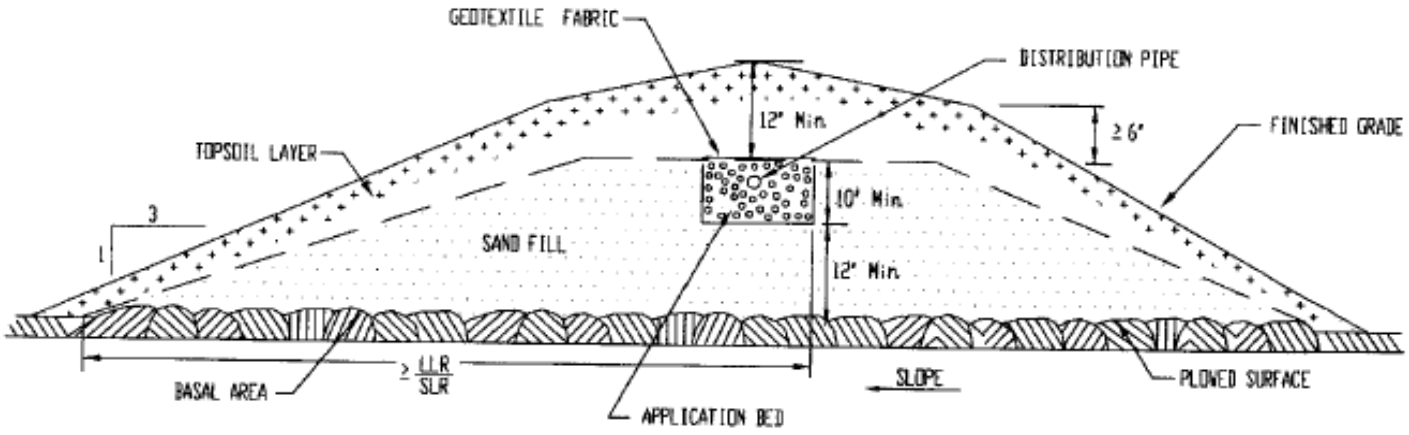


PLAN VIEW FOR MOUND

(N.T.S.)

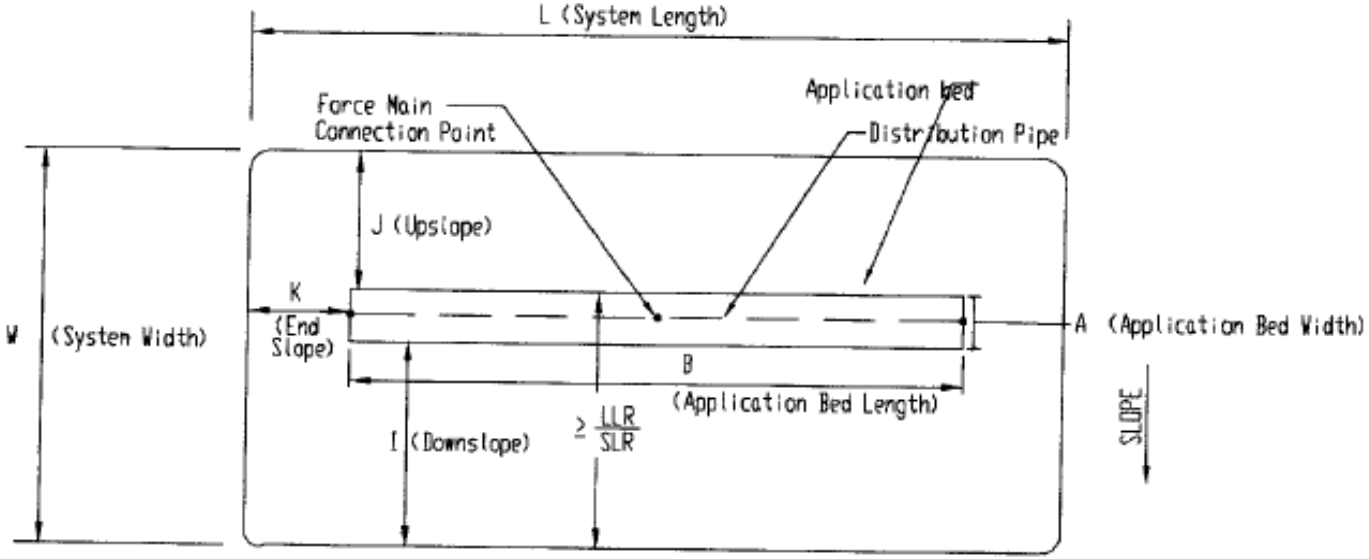
* Observation pipes may be installed in the application bed.

Illustration E.13: Type 5 – Mound System: Single Bed, Sloping Site



MOUND SYSTEM - TYPE 5

(SINGLE BED - SLOPING SITE)



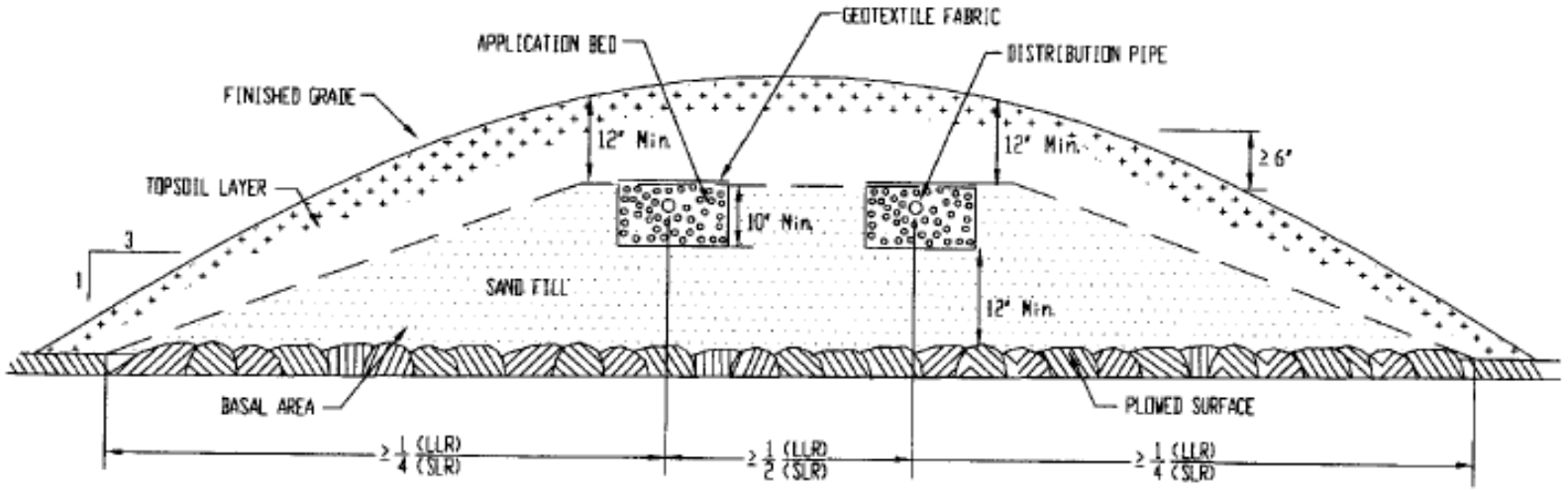
PLAN VIEW FOR MOUND

(N.T.S.)

* Force main must connect to the distribution pipe from the upslope(J) or the endslope(K). The force main cannot be located in the downslope area(I) on landslopes of 2% or greater.

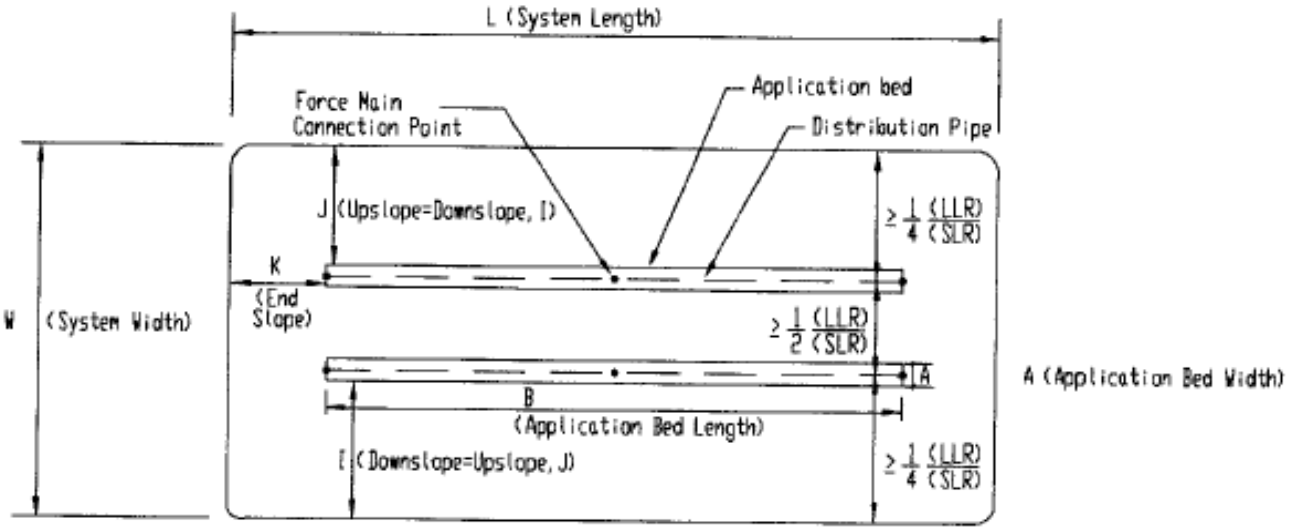
* Observation pipes may be installed in the application bed.

Illustration E.14: Type 5 – Mound System: Multiple Bed, Level Site



MOUND SYSTEM - TYPE 5

(MULTIPLE BED - LEVEL SITE)

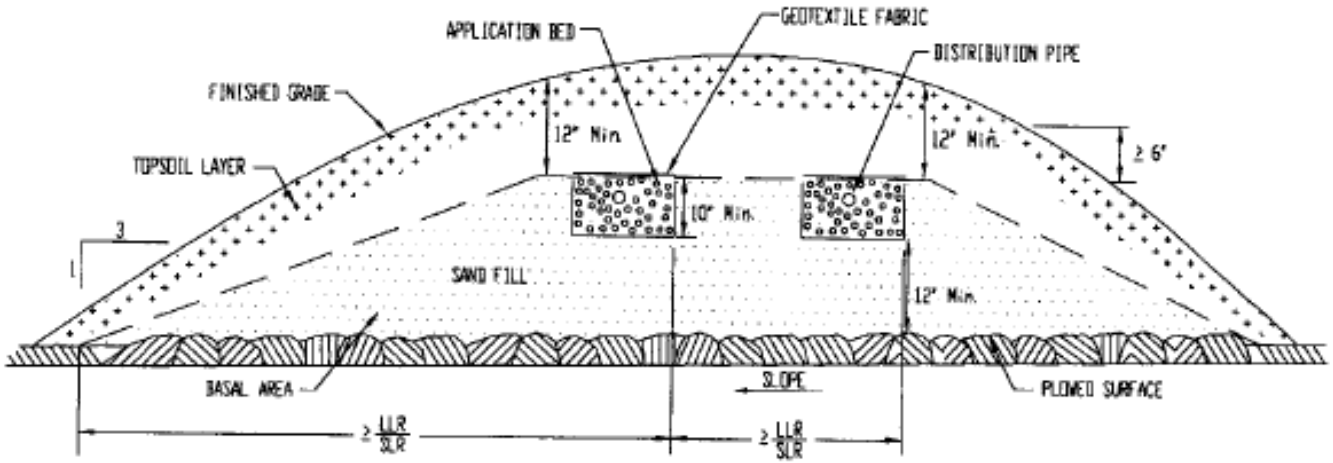


PLAN VIEW FOR MOUND:

(N.T.S.)

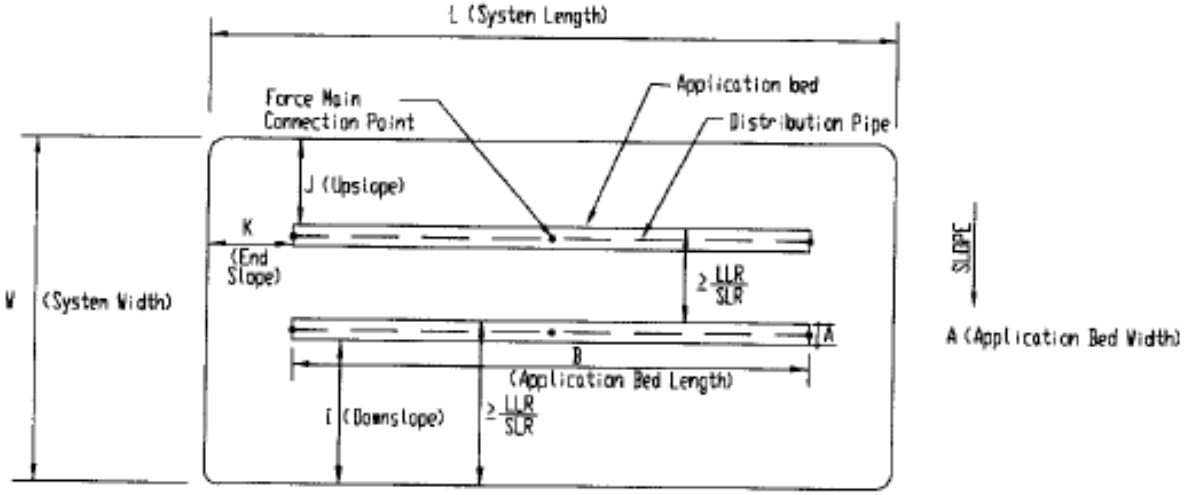
* Observation pipes may be installed in the application bed.

Illustration E.15: Type 5 – Mound System: Multiple Bed, Sloping Site



MOUND SYSTEM - TYPE 5

(MULTIPLE BED - SLOPING SITE)



PLAN VIEW FOR MOUND

(N.T.S.)

* Force main must connect to the distribution pipe from the upslope(J) or the endslope(K). The force main cannot be located in the downslope area(I) on landslopes of 2% or greater.

* Observation pipes may be installed in the application bed.